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RAYNAUD'S DISEASE AMONG MEN

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It has been assumed that Raynaud's disease occurs very rarely among men as compared with its occurrence among women. From both a diagnostic and a prognostic standpoint it is important that the physician be able to recognize Raynaud's disease both among men and among women and to distinguish it from other peripheral vascular diseases, especially from those in which there occurs a secondary form of Raynaud's phenomenon. The differential diagnosis of Raynaud's disease is more difficult among men than among women because of the relative infrequency of Raynaud's disease among men in comparison with the organic peripheral vascular diseases which may produce similar vasospastic phenomena in the extremities.

In reviewing 200 cases of thromboangiitis obliterans, Allen and Brown¹ found that Raynaud's phenomenon was the first symptom in 12 per cent and that it occurred at some time during the course of the disease in 30 per cent of all cases. Barker and one of us,² studying a group of 280 patients suffering from arteriosclerosis obliterans, found that Raynaud's phenomenon occurred in 10 per cent of the cases.

By Raynaud's phenomenon is meant the occurrence of intermittent episodes due to a functional vascular disturbance either primary or secondary, resulting in color changes of the extremities, principally the fingers and toes and less frequently the nose and ears, initiated by exposure to cold and less frequently by emotional or nervous strain and stress. When the condition is primary, it may be referred to as Raynaud's disease.

Pathologic changes in Raynaud's disease are minimal regardless of the duration. In many cases there are few or no organic vascular changes. In some of the cases of more severe Raynaud's disease of long duration one is able to demonstrate intimal thickening of the smaller arteries, and there may be small cutaneous trophic lesions with small regions of local necrosis and localized scleroderma.

Although Raynaud³ and later Hutchinson⁴ attempted to clarify the confused state of functional peripheral

vascular disturbances, it was not until Allen and Brown⁵ published their work in 1932 that the clinical syndrome of Raynaud's disease was clearly elucidated. After making a thorough review of the literature and of 150 cases at the Mayo Clinic, Allen and Brown presented a working basis for diagnosing this condition. The following is a summary of the criteria which should be observed in making a diagnosis of Raynaud's disease: (1) episodes of Raynaud's phenomenon *excited by cold or emotion*; (2) *bilaterality of Raynaud's phenomenon*; (3) *absence of gangrene*, or, if present, its limitation to minimal grades of cutaneous gangrene; (4) *absence of any primary disease which might be causal*, such as occlusive arterial disease, cervical rib or organic disease of the nervous system; (5) *symptoms of two years' or longer duration*.

In the 150 cases in which the diagnosis was Raynaud's disease and which were studied by Allen and Brown⁶ in 1932, 133 patients were female. The remaining 17 were male. Only 7 of the 17 cases in males met all the requirements of the criteria. In 10 cases the diagnosis of probable Raynaud's disease was made.

To our knowledge, a study of Raynaud's disease in a large group of men has not been made and no follow-up study for verification of the diagnosis has been made. It is our purpose in this paper to present such a study.

PRESENT STUDY

From January 1920 to December 1942 inclusive the diagnosis of Raynaud's disease, Raynaud's phenomenon or questionable Raynaud's disease was made for 847 patients coming to the Mayo Clinic. Because of the state of confusion in diagnosis prior to 1920, cases in which the diagnosis had been made previous to this time were omitted. Six hundred and forty-nine (77 per cent) of these patients were female. The remaining 198 (23 per cent) were male. The sex incidence of all patients entering the clinic during this period was about equal. It is of particular interest that the sex incidence for the group with a diagnosis of Raynaud's disease was likewise about equal from 1920 to 1924 inclusive. From 1925 on the incidence changed rather abruptly and has remained quite constant since, averaging approximately 21 per cent men and 79 per cent women. This change occurred at the time Brown, Allen, Barker, Horton and others of the Mayo Clinic became particularly interested in peripheral vascular diseases and about the time that Allen and Brown⁷ began considering a

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more logical approach for making the diagnosis of Raynaud's disease.

Seventeen of the 198 cases in males were discarded from our study for various reasons. The remaining 181 cases were then carefully reviewed and, by means of the Allen-Brown criteria, were classified into three groups. Those that seemed to meet all the requirements of the criteria were grouped as "diagnosis adequate." Those that met the criteria except for some questionable reason, as insufficient duration, unilateral-

the remaining 5 per cent of the cases, but the site of involvement was not recorded.

As mentioned previously, classically many writers describe a three phase color-change in Raynaud's disease; the usual sequence being initial pallor, then cyanosis and finally rubor. In this group, of 100 cases detailed color changes were recorded in 63. The typical three phase color change occurred in only 22 per cent of this group. In many of the remaining 37 cases, Raynaud's phenomenon was mentioned but not described in detail. Probably in many of these there were multiphasic color changes but it was not possible to evaluate them. Pallor was the most frequent color change described; it occurred as the sole phase in 41 per cent of the 63 cases.

The excitant mechanism producing this phenomenon was given as "cold" in every case, and only in 9 cases was emotional or nervous strain mentioned as an additional excitant. Apparently the latter is a more important factor among women than among men.

Some writers have emphasized the frequency of associated functional or neurotic disturbances among patients having Raynaud's disease. In 29 of this group of 100 cases such disturbances were important enough to be included in the final diagnosis. The majority were either functional gastrointestinal disturbances or functional disturbances of the nervous system.

In 3 cases there was a familial history of Raynaud's phenomenon similar to that of the patient. In all 3 cases the mother was the one affected.

Of this group of 100 patients follow-up information was obtained on 69 during subsequent visits to the clinic or from follow-up letters. From this information an attempt was made to evaluate the therapeutic regimen followed by these patients. In general, treatment recommended to them varied and depended on the severity of the symptoms and the degree of incapacitation. Usually the patient was reassured that massive gangrene of the involved extremities followed by one or more amputations was not going to develop, as was feared by so many. The primary objects of treatment were reassurance and an attempt to remove the exciting factors from the patient or the patient from the exciting factors. Protection from cold and sudden changes of temperature was advised in all cases. Warm clothing, including woolen socks, gloves and ear muffs, was recommended. Changes of occupation or climate were suggested to some patients when they seemed advisable. Smoking was usually discouraged. When the patient's condition was incapacitating enough to warrant it, or when the foregoing conservative measures had failed to give proper relief or were not practicable, sympathectomy was recommended.

Of the 69 patients from this group who were followed up adequately, sympathectomy had been performed on only 2, and definite improvement of both was reported. This form of treatment was recommended to many other patients but was refused. In the remaining 67, for whom more conservative treatment was used, the following interesting results were obtained: Thirty-three per cent of the patients reported improvement so as to have little or no incapacitation at the time when they reported; 44 per cent reported that their status had remained practically the same or that they were reasonably well. The remaining 23 per cent of this group reported their symptom complex as being

TABLE 1.—Raynaud's Disease Among 100 Male Patients

Age on Onset *	Patients
Childhood (to 10 years).....	6
11-20 years.....	10
21-30 years.....	24
31-40 years.....	33
41-50 years.....	18
51-60 years.....	8
61-65 years.....	1
Duration of symptoms †	
Less than 2 years.....	9
2-5 years.....	32
6-10 years.....	25
11-15 years.....	10
16-20 years.....	13
21-50 years.....	11

* Youngest patient 5 years, oldest 63 years; 73 per cent 40 years or younger.

† Longest duration of symptoms fifty years.

ity of Raynaud's phenomenon, unrecorded or questionable peripheral pulsations or the possibility of the vasospasm being secondary to something else, were placed in the group designated as "diagnosis questionable" or probable Raynaud's disease. The third group consisted of cases in which, in our opinion, the diagnosis of Raynaud's disease should not have been made.

From the first two groups, in which the original diagnosis was thought either adequate or questionable, 100 cases were taken at random to make a general study of Raynaud's disease as it occurs among men. Cases and percentages will be used interchangeably because of the number chosen.

It was not surprising to find that in 73 per cent of this group the vasospastic symptoms had begun before the patient reached the age of 40 years (table 1) and that the greatest incidence of onset of symptoms occurred during the third and fourth decades. The youngest age of onset was given as 5 years and the oldest as 63 years. As many other writers have emphasized, Raynaud's disease is predominantly a disease of young adults.

In 91 per cent of this group, Raynaud's phenomenon had been present at least two years (table 1). Fifty-nine per cent of the patients had had their vasospastic symptoms for six years or more. Eleven per cent of them had had symptoms for twenty-one years or longer. The longest duration was given as fifty years.

Vasospastic changes occurred most frequently in the fingers. In 61 per cent of this group of patients the fingers, or less frequently the fingers and hands, alone were involved. Raynaud's phenomenon was recorded as being unilateral in 16 per cent of the cases. None of these 100 patients had vasospastic changes involving the feet alone, but in 36 per cent the hands and feet were both affected. In 3 instances color changes also occurred in the external ears, and in a single case the nose was involved. Vasospastic changes occurred in

worse at the time of the follow-up than at the time of their last visit to the clinic. In summary, 77 per cent of these patients have enjoyed reasonably good health or at least have not become any worse following the conservative measures as outlined.

From a therapeutic standpoint an attempt was made to evaluate the effect of tobacco on these patients. Of the group of 69 patients 66 per cent were users of tobacco. Some patients improved considerably after reducing or stopping the use of tobacco. On the other hand, about as many improved while they continued smoking and in some instances improvement occurred even when the use of tobacco had been increased. A few patients who had continued smoking one to two packages of cigarets daily were among those reporting improvement of their Raynaud's disease. On the other hand, some who continued to smoke heavily became worse. The majority of the patients in all groups, whether nonsmokers, mild smokers or heavy smokers, followed a rather similar course. Consequently it is impossible from our studies to say that tobacco is or is not harmful to these patients.

The remaining portion of this study pertains to a follow-up study for the verification of the diagnosis of Raynaud's disease among men.

Of the total of 181 male patients who had had a diagnosis of Raynaud's disease on the original visit, follow-up information was obtained on 100. This information was secured either from follow-up letters or from records of subsequent visits. Again the number of cases and percentage can be used interchangeably.

The 100 cases were first divided into two main subgroups depending on the original diagnosis. In 58 cases the original diagnosis had been Raynaud's disease (no question) and in the remaining 42 the diagnosis had been questionable Raynaud's disease. The adequacy of the original diagnosis in each case was then

"diagnosis adequate." Follow-up information obtained two to many years after the original diagnosis revealed that 26 of the 30 (87 per cent) still met the requirements for an adequate diagnosis. The diagnosis in 4 cases now seems inadequate. Raynaud's phenomenon is now absent in 2 of the 4, and in another evidence

TABLE 3.—Original Diagnosis of Questionable Raynaud's Disease: 42 Cases

Verification of Diagnosis (Allen-Brown Criteria)		Follow-Up Study	
Result	Cases	Result	Cases
Original diagnosis seemed adequate.....	4	Diagnosis still adequate.....	4
Original diagnosis seemed questionable or probable Raynaud's disease.....	33	Follow-up diagnosis.....	33
Reason:		Diagnosis now seems adequate.....	13
Insufficient duration.....	9	[?], unilateral Raynaud's phenomenon).....	7
Arterial pulse uncertain.....	8	Atherosclerosis.....	5
Duration not recorded.....	4	Thromboangiitis obliterans	3
Raynaud's phenomenon unilateral.....	4	No Raynaud's phenomenon.	3
Early atherosclerosis (?).....	4	Died.....	2
Raynaud's phenomenon secondary (?).....	3		
Occlusive disease (?) in arteriogram.....	1		
Original diagnosis seemed incorrect.....	5	Follow-up diagnosis.....	5
Reason:		No Raynaud's phenomenon.	4
No Raynaud's phenomenon.....	3	Occlusive arterial disease....	1
Thromboangiitis obliterans.....	1		
Pneumatic hammer disease (?).....	1		

of extensive scleroderma has since developed. One patient had died.

The adequacy of the original diagnosis seemed questionable in 21 of the 58 cases. Sixteen of the 21 patients had had Raynaud's phenomenon for less than two years or the duration was not recorded. In the other 5 Raynaud's phenomenon was recorded as being unilateral.

Follow-up studies of this group of 21 cases revealed that in 16 (76 per cent) the diagnosis now seems adequate. In 2 cases Raynaud's phenomenon is still unilateral and therefore the diagnosis still remains questionable. The vasospastic changes have ceased to occur in 2 other cases. The remaining patient has died.

Seven of the 58 cases in which an original diagnosis of Raynaud's disease had been made failed to meet the Allen-Brown criteria and so were classified as "diagnosis inadequate or incorrect." Follow-up studies verified this impression. In 6 of these cases there is now some other disease with secondary Raynaud's phenomenon. In 1 case Raynaud's phenomenon no longer occurs.

The second large subgroup consists of 42 cases in which the original diagnosis had been questionable Raynaud's disease or probable Raynaud's disease (table 3). Again using the Allen-Brown criteria as a working basis, this group of cases was reviewed in the same manner as was the first group so that the adequacy of the original and subsequent diagnosis might be evaluated. In 4 of these cases all the requirements of the criteria were fulfilled. In our opinion a diagnosis of Raynaud's disease (no question) should have been made on the original visit. Follow-up studies verified this impression, as the diagnosis of unquestionable Raynaud's disease still seems adequate after two to many years in all 4 cases.

TABLE 2.—Original Diagnosis of Raynaud's Disease (No Question): 58 Cases

Verification of Diagnosis (Allen-Brown Criteria)		Follow-Up Study	
Result	Cases	Result	Cases
Original diagnosis adequate.....	30	Follow-up diagnosis.....	30
		Diagnosis still adequate....	26
		No Raynaud's phenomenon	2
		Now severe scleroderma....	1
		Died.....	1
Reason:			
Duration not recorded....	10	still unilateral.....	2
Insufficient time.....	6	No Raynaud's phenomenon	2
Raynaud's phenomenon unilateral.....	5	Died.....	1
Original diagnosis seemed incorrect.....	7	Follow-up diagnosis.....	7
Reason:		Some other disease now....	4
Probably primary disease causing Raynaud's phenomenon....	7	Occlusive arterial disease..	2
		No Raynaud's phenomenon	1

evaluated, using the Allen-Brown criteria as a working basis. Finally, the follow-up information in each case was likewise analyzed and the diagnosis reevaluated using the same criteria.

Thirty of the 58 cases (table 2) in which the original diagnosis had been Raynaud's disease (no question) seemed to meet all the requirements for a certain diagnosis of Raynaud's disease. These were grouped as

In our opinion, in 5 of this group of 42 cases the original diagnosis failed to meet the criteria for diagnosis of Raynaud's disease or of questionable Raynaud's disease and so we classified it as incorrect. Follow-up studies verified our impression. We agreed with the original diagnosis of questionable Raynaud's disease in 33 of the 42 cases. Thirteen of these 33 patients had had Raynaud's phenomenon less than two years or the duration was not recorded. The peripheral arterial pulsations were questionable or unrecorded in 8 cases. The vasospastic phenomenon was possibly secondary in 8 cases and it was unilateral in 4 other cases.

Follow-up studies of this group of 33 cases now reveal that 13 cases (39 per cent) fulfil the criteria and that a diagnosis of Raynaud's disease can now be made. The adequacy still remains questionable in 7. Progressing acrosclerosis is present in 5 other cases, while in 3 there is now evidence of thromboangiitis obliterans. The vasospastic changes have ceased to occur in 3 cases. Two patients have died.

COMMENT

One of the purposes of this study has been to gain a fuller knowledge of Raynaud's disease affecting men. In the past it has been difficult to make a diagnosis of Raynaud's disease among men without viewing that diagnosis with suspicion and feeling that some other pathologic entity, such as thromboangiitis obliterans, arteriosclerosis obliterans or scleroderma, which would explain the Raynaud phenomenon, would eventually develop. Our follow-up studies seem to prove that by following the criteria of Allen and Brown a diagnosis of Raynaud's disease can be made with confidence that some other form of peripheral vascular disease will not become apparent later. The only question regarding the criteria arising at this time is whether the phenomenon must be always bilateral. In 16 per cent of the 76 selected cases of questionable Raynaud's disease, Raynaud's phenomenon continued to be unilateral after two or more years without the development of any possible secondary cause for the phenomenon. Another interesting question that has arisen in our minds is how to interpret and incorporate the 7 cases in which Raynaud's phenomenon was occurring at the time of a previous visit but has since ceased. First of all we wonder if the patients had Raynaud's disease. Secondly, if they did, has the disease been cured or is the patient in a state of remission? Only time and further study can answer these questions.

The early establishment of a correct diagnosis of Raynaud's disease is of considerable importance to the patient. Raynaud's disease is usually a more benign disease than the more serious diseases which have Raynaud's phenomenon as a secondary manifestation, such as thromboangiitis obliterans, arteriosclerosis obliterans and scleroderma. If a diagnosis of Raynaud's disease can be made, the physician can give the patient assurance of a better prognosis than in most of the other conditions associated with secondary Raynaud's phenomenon and adequate treatment for Raynaud's disease can be instituted at an earlier date.

The treatment of Raynaud's disease depends on the degree of incapacitation. A conservative program of treatment is worth while when the disease is not too

incapacitating. These measures are not curative but merely prophylactic. The patient is advised to avoid exposure to cold or changes of temperature. This may mean advising him to change his occupation or to move to a warmer climate. Protective clothing alone helps in many cases of mild Raynaud's disease. Although in the majority of instances tobacco apparently has no relationship either to the symptoms or to the course of the disease, a few patients are definitely benefited by abstinence. The new patient, if a user of tobacco, should at least give himself a fair trial of abstinence to determine if he is one who might be benefited.

Sympathectomy was done in 2 cases and recommended in others. Prompt relief followed in both cases so that there was much less incapacitation than before operation. Sympathectomy has been done with relief of vasospasm on many more women suffering from Raynaud's disease. Whenever the patient is considerably incapacitated and is unable to get relief from or follow the more conservative measures, sympathectomy should be considered.

SUMMARY

Of the 847 patients diagnosed as having Raynaud's disease or questionable Raynaud's disease at the Mayo Clinic between the years 1920 and 1942 inclusive, 198 were men. Seventeen of the latter group were discarded from our study. About 1925 the incidence of men to women changed definitely from an incidence of 50 per cent men and 50 per cent women to an incidence which has remained constant, 21 per cent men and 79 per cent women. Allen and Brown's criteria formulated about that time is a possible reason for this change.

A study of the nature and course of the disease was made on an unselected group of 100 of the 181 male patients. Follow-up studies were done on 69 of these patients. Sympathectomy had been performed on 2 of the 69, with improvement in both. In 33 per cent of the 67 cases in which more conservative treatment was used the condition had improved, in 44 per cent it was unchanged and in 23 per cent it was worse. The data on the effect of tobacco on Raynaud's disease are inconclusive.

An evaluation of the original diagnosis and a follow-up study were carried out in 100 of the 181 cases. Using the criteria of Allen and Brown,⁵ the diagnosis on the original visit seemed adequate in 34, questionable in 54 and incorrect in 12. Of the 34 cases in which the diagnosis seemed adequate on the original examination, the follow-up study revealed that in 30 (88 per cent) the diagnosis was still adequate and evidence of any other disease which might have produced the symptoms secondarily had not developed. Of the 88 cases in which an original diagnosis of either Raynaud's disease or questionable Raynaud's disease had been made, the diagnosis of Raynaud's disease should be certified on the follow-up study in 59 (67 per cent). These data indicate that, if care is given to the use of adequate criteria for the diagnosis of Raynaud's disease, this diagnosis can be made and verified on a follow-up study in a much greater number of cases than has previously been considered probable by most students of peripheral vascular diseases.

ETIOLOGY OF THROMBOANGIITIS
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The etiology of thromboangiitis obliterans has been obscure ever since the first differentiation by Buerger between this condition and other forms of peripheral vascular disease. Impressed by the inflammatory type of lesions seen in the blood vessels, Buerger¹ regarded the disease as an infection, but all the clinical evidence indicates that this conception is incorrect. Goodman² agrees that thromboangiitis obliterans is an infectious disease and holds that an attenuated virus of typhus is responsible for it.³ Kaunitz⁴ suggests that chronic ergot poisoning from eating infected rye foods causes the disease, and recently Thompson⁵ has claimed that fungous infection (dermatophytosis) is the causative agent. The occurrence of the disease in smokers has been commented on by several writers. Erb⁶ in 1904 stated that smoking was an important contributing cause of this condition. Lilienthal⁷ noted this relationship in 1914, and Willy Meyer⁸ in 1920 expressed the conviction that thromboangiitis obliterans was due to the use of tobacco.

Thromboangiitis obliterans has interested me profoundly for twenty years, and during this time it has been my unusual opportunity to study in clinic and private practice over 1,400 cases of this disease. Hundreds of these cases have been followed for many years. Certain observations have emerged from this experience which have a bearing on the question of etiology.

The first of these is the incidence of the disease in the two sexes. In this series only 12 cases of thromboangiitis obliterans have been seen in women, an incidence of less than 1 per cent, while over 99 per cent have occurred in men. The infrequency of the disease in the female has been noted by other observers.⁹ There is no known infection which affects almost exclusively one sex, and nothing known about the activities of micro-organisms or viruses warrants the belief that the female sex enjoys any special immunity. On this basis alone, theories that thromboangiitis obliterans are due to any form of infection fail to be convincing.

The second observation is that without exception all men and women with thromboangiitis obliterans have been smokers of tobacco. The statement appears frequently in medical literature that instances of this dis-

ease have been seen in nonsmokers. This is contrary to my experience. It is not difficult to explain this difference of opinion. It is easy to confuse peripheral vascular disease due to thromboangiitis obliterans with that due to presenile arteriosclerosis, an entirely different disease. This is particularly true in the age group between 40 and 55. In both conditions the symptoms, such as intermittent claudication, rest pain, coldness and numbness of the extremities, will be present. In both conditions the local signs, the absence of pulsations, the diminished oscillometric readings, the reduced temperature of the feet, the presence of ulcers or gangrene will be the same. A clinical differentiation rests on the recognition that when an individual shows signs of arteriosclerosis in other parts of his body the disease process in his legs is due to the same cause and is not due to thromboangiitis obliterans. Each patient should be carefully scanned from head to foot to elicit signs of arteriosclerosis. In table 1 there are listed the signs regarded as particularly significant. It should be emphasized that no one sign is looked on as decisive

TABLE 1.—Criteria for Differentiation Between Thromboangiitis Obliterans and Arteriosclerosis in Patients Between 40 and 50 Years of Age

Thromboangiitis obliterans	Arteriosclerosis
Appears younger than his age	Appears older than his age
Hair normally pigmented	Hair usually gray
No arcus senilis	Arcus senilis frequently present
Retinal arteries normal	Retinal arteries usually sclerotic
Blood pressure usually low	Blood pressure often high
Radial and temporal vessels soft	Radial and temporal vessels thickened and hard
Upper extremities frequently involved	Upper extremities seldom involved
Femoral arteries frequently closed	Femoral arteries seldom closed
No calcification of vessels on x-ray examination	Calcification of vessels on x-ray examination frequently seen
Blood volume usually diminished	Blood volume usually normal
Symptoms of coronary artery sclerosis rare	Symptoms of coronary artery sclerosis frequent
Aorta appears normal on x-ray examination	Aorta sometimes appears elongated on x-ray examination
Albuminuria rare	Albuminuria not uncommon
History of migrating phlebitis frequent	History of migrating phlebitis rare

for differentiation. Rather each disease has a general pattern which usually makes distinction possible.

Care must also be used to exclude instances of peripheral arterial disease due to syphilis, embolism, trauma, polycythemia, poisoning from ergot or arteritis due to influenza, typhus or rheumatism. Thromboangiitis obliterans is a diagnosis made by exclusion, and there are no pathognomonic symptoms or signs by which it can be absolutely identified. Critical scrutiny of every case is necessary to establish the true nature of the disease. Those who carelessly report all cases of occlusive arterial disease in young people as thromboangiitis obliterans confuse medical literature and obscure the simple facts about this disease which are so clear and important.

The third point that is learned from the clinical experience with thromboangiitis obliterans is that the disease is almost uniformly progressive in individuals who continue smoking. In such patients early symptoms are soon followed by ulcers of the toes, gangrene and amputations of the extremity. The disease progresses from extremity to extremity, frequently causing the loss of one or both legs and occasionally one or both arms as well. In the group of 1,400 patients that

From the Clinic for Peripheral Vascular Diseases, the Mount Sinai Hospital.

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Surg., Gynec. & Obst. 14.

2. Goodman, Charles: Islettsia: Etiologic

Relationship, J. Mount

3. "Colonel Harry P.

Diseases, Army Medical

specimens from 16 case

of specific typhus antibod

while none were found in the other 12 cases. The 4 individuals who

showed the presence of epidemic antibodies immigrated from Poland and

Russia, regions where epidemic typhus is prevalent. One patient gave a

history of having had typhus previously, while the other 3 were not

certain of a previous attack. The fact that 12 cases showed no evidence

of typhus antibodies suggests that there is no relationship between typhus

and thromboangiitis obliterans" (personal communication to the author).

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I have studied 174 have lost one leg, 100 both legs, 1 one leg and both arms, 2 both legs and one arm and 2 both legs and both arms.

The final fact that is evident from a study of patients with thromboangiitis obliterans is that the disease is immediately and completely arrested in individuals who permanently discontinue smoking. The disease process may be compared to a house on fire; with cessation of smoking the fire is extinguished. Damage has been done by the fire which must be repaired, but the house is no longer burning down. In support of this statement, the case histories of 100 patients with thromboangiitis obliterans, followed personally from ten to twenty years, is summarized in table 2. No patient is included whose age of onset of symptoms was over 45, who had a blood pressure of over 160 when trouble in the legs first developed, who showed calcification of the blood vessels on x-ray examination, whose Wasser-

mann test was positive at any time or who suffered from rheumatic heart disease. All patients included had thromboses of major peripheral arteries in one or more extremities. This table includes all patients with thromboangiitis obliterans who have been followed over ten years and who have completely given up the use of tobacco. Eighty-three of these patients had no amputation when first seen, 15 already had one leg amputated and 2 had both legs off. It will be noted that in nearly all of the patients listed the onset of the peripheral vascular disease was between the ages of 20 and 40, the characteristic age of onset for patients with thromboangiitis obliterans. All of these patients were smokers; all of them stopped smoking throughout this period of observation. With few exceptions, all are well and working at various occupations, requiring no treatment. Ten illustrative cases will be cited in detail, but in one respect all of them are alike. In no instance

TABLE 2.—Patients with Thromboangiitis Obliterans Followed Ten to Twenty Years

Case	Patient	Age of Onset	Year of First Examination	Duration of Illness When First Seen	Symptoms *	Degree of Circulatory Impairment †	Local Lesions	Year of Last Examination	No. of Years Observed	Work- ing	Occupation
No Amputations											
1	M. S.	37	1923	2 yrs.	Pain	2+	Ulcer of toe	1943	20	Yes	Gelatin mixer
2	H. H.	38	1924	1 yr.	Pain	3+	Ulcer of toe	1944	20	Yes	Barber
3	I. K.	30	1924	3 yrs.	Intermittent claudication	2+	Ulcer of toe	1943	19	Yes	Cutter
4	H. L.	26	1924	5 yrs.	Pain	2+	Ulcer of toe	1943	19	Yes	Cutter or presser
5	S. K.	40	1925	6 yrs.	Pain	2+	Ulcer of toe	1943	18	Yes	Operator
6	S. J.	25	1925	1 yr.	Intermittent claudication	3+	Ulcer of toe	1943	18	Yes	Truck driver
7	J. M.	23	1926	3 yrs.	Pain, coldness	3+	None	1944	15	Yes	Garage mechanic
8	E. R.	24	1925	½ yr.	Pain	3+	None	1943	18	Yes	Insurance agent
9	J. L.	33	1926	1½ yrs.	I. C., rest pain	2+	None	1944	18	Yes	Operator
10	M. S.	37	1925	10 yrs.	Intermittent claudication	3+	None	1942	17	No	Brick layer
11	G. A.	28	1926	4 yrs.	Pain	2+	None	1943	17	Yes	Chauffeur
12	B. M.	44	1926	2 yrs.	I. C., (2 blocks), coldness, rest pain	3+	None	1943	17	Yes	Grocery clerk
13	N. R.	27	1927	14 yrs.	I. C. (3-4 blocks)	2+	None	1943	16	Yes	Hairdresser
14	I. K.	33	1927	2 yrs.	I. C. (¼ block), coldness	2+	None	1943	16	Yes	Musician
15	J. W.	31	1928	3 yrs.	I. C. (2 blocks), numbness	3+	None	1944	16	Yes	Salesman
16	J. S.	34	1928	2 yrs.	I. C. (1 block), coldness	3+	Small ulcer, left foot	1944	16	Yes	Storekeeper
17	A. G.	32	1928	10 yrs.	I. C. (2 blocks)	2+	None	1944	16	No	Butcher
18	J. W.	33	1927	2 yrs.	I. C., severe rest pain	3+	None	1944	16	Yes	Lumber business
19	V. N.	35	1927	1 yr.	I. C. (3 blocks), coldness	2+	None	1943	16	Yes	Market inspector
20	J. B.	39	1927	2 yrs.	I. C., rest pain, numbness	3+	None	1942	15	Yes	Tailor
21	H. M.	40	1926	1 yr.	Intermittent claudication	3+	None	1941	15	Yes	Storekeeper
22	J. R.	43	1926	3 yrs.	Intermittent claudication	3+	None	1941	15	Yes	Merchant
23	S. S.	40	1929	3 yrs.	Coldness, pain	2+	Ulcer, right big toe	1944	15	Yes	Finisher
24	L. W.	30	1929	5 yrs.	I. C. (3 blocks), rest pain	2+	Ulcer, right big toe	1944	15	Yes	Embroiderer
25	I. A.	40	1929	1 yr.	I. C. (few steps), coldness	2+	None	1941	14	Yes	Waiter
26	J. F.	25	1928	1 yr.	I. C., rest pain	1+	Ulcer, right 2d toe	1942	14	Yes	Clerk
27	S. N.	43	1926	1 yr.	I. C. (1 block), rest pain	3+	Ulcer, outer side left big toe	1940	14	Yes	Merchant
28	R. M.	31	1930	3 yrs.	Intermittent claudication	3+	Extensive ulcer, right foot, unhealed wound	1944	14	Yes	Farmer
29	D. B.	38	1929	½ yr.	I. C. (10 blocks), pain	2+	None	1943	14	Yes	Walter
30	J. E.	35	1929	1 yr.	I. C., rest pain	3+	Ulcer (gangrenous), right 4th toe	1943	11	Yes	Milliner
31	H. L.	35	1930	¼ yr.	Pain	1+	Ulcer, left big toe, right 2d toe	1944	14	Yes	Bus driver
32	L. F.	42	1929	¾ yr.	I. C. (10 blocks)	1+	None	1943	14	Yes	Lawyer
33	L. A.	30	1930	7 yrs.	Pain	1+	Ulcer	1944	14	Yes	Operator
34	D. G.	32	1930	2 yrs.	I. C. (5 blocks), numbness	2+	None	1944	14	Yes	Shoe salesman
35	M. D.	37	1929	1½ yrs.	I. C., rest pain	2+	Superficial ulcer, right 4th toe	1943	14	Yes	Plumber
36	A. H.	33	1930	2 yrs.	I. C., rest pain	2+	Ulcer, right 5th toe	1944	14	Yes	Collector
37	B. B.	29	1930	6 yrs.	Severe rest pain	3+	Ulcers (multiple) left foot	1943	13	Yes	Clerk
38	M. K.	38	1930	2 yrs.	Pain	3+	None	1941	13	Yes	Painter
39	H. R.	26	1930	3 yrs.	Pain	2+	None	1943	13	Yes	Foreman, shoe factory
40	S. P.	38	1930	4 yrs.	I. C. (4 blocks), rest pain	3+	Gangrene, left 2d toe; ulcers (multiple) left foot	1943	13	Yes	Storekeeper
41	D. L.	37	1928	½ yr.	Coldness, numbness, phlebitis	1+	None	1941	13	Yes	Letter carrier
42	B. M.	43	1928	4 yrs.	I. C. (1½ blocks)	3+	None	1941	13	Yes	Shoe machine operator
43	M. K.	41	1929	1 yr.	I. C. (3 blocks)	1+	None	1942	13	Yes	Doctor
44	M. K.	20	1931	2 yrs.	Rest pain, pain on walking	2+	Ulcer, left 5th toe	1944	13	Yes	Bus driver
45	R. L.	40	1930	1 yr.	I. C., numbness	2+	None	1943	13	Yes	Physical instructor
46	J. A.	44	1931	¼ yr.	I. C. (2 blocks), pain	2+	None	1944	13	Yes	Cutter
47	R. K.	23	1931	3 yrs.	Rest pain, coldness	2+	Ulcer	1944	13	Yes	Operator
48	J. R.	37	1931	3 yrs.	Pain, coldness	2+	Ulcer of foot	1944	13	Yes	Operator
49	H. K.	28	1930	1 yr.	I. C. (3 blocks)	3+	None	1943	13	Yes	Painter
50	G. S.	32	1931	5 wks.	I. C. (1 block)	3+	None	1944	13	Yes	Businessman
51	H. G.	23	1930	1 yr.	Intermittent claudication	1+	Healed ulcer	1942	13	Yes	Clerk
52	D. S.	26	1931	1 yr.	I. C., rest pain, coldness	2+	None; discoloration 2d toe	1943	12	Yes	Salesman
53	P. D.	51	1930	1 yr.	I. C. (1 block), severe rest pain	2+	Gangrenous ulcers on both big toes and right 2d toe	1942	12	Yes	Stationary business
54	J. W.	22	1930	5 yrs.	I. C. (5 blocks), coldness, rest pain	2+	Gangrene, 2d and 4th left toes; ulcers, left 4th toe	1942	12	Yes	Furrier
55	P. S.	26	1929	2 yrs.	I. C., rest pain	2+	None	1941	12	Yes	Operator
56	A. W.	21	1929	9 yrs.	I. C. (5 blocks), coldness	2+	None	1941	12	Yes	Furrier
57	I. G.	21	1928	12 yrs.	I. C. (2 blocks)	3+	None	1940	12	Yes	Furrier
58	C. F.	40	1932	8 yrs.	I. C. (1 block), severe rest pain	2+	Gangrene, 4 inner toes right foot; gangrene, both thumbs, right index finger	1944	12	Yes	Newspaper foreman
59	J. T.	22	1932	½ yr.	Pain	2+	None	1944	12	Yes	Postoffice clerk

TABLE 2—Patients with Thromboangiitis Obliterans Followed Ten to Twenty Years—Continued

Case	Patient	Age	Year of Onset	Year of First Examination	Duration of Illness When First Seen	Symptoms *	Degree of Circulatory Impairment †	Local Lesions	Year of Last Examination	No. of Years Observed	Working	Occupation
No Amputations												
60	D S	26	1931	2 yrs	2 yrs	I C (2 blocks), severe rest pain	3+	Shallow ulcer, dorsal surface, right foot	1943	12	Yes	Coal and oil business
61	S R	39	1931	3 yrs	3 yrs	I C, severe pain	2+	Gangrene, 2d, 4th and 5th toes, extensive infection, ulcer, inner side right big toe	1943	12	Yes	Merchant
62	M W	40	1931	3 yrs	3 yrs	Coldness, I C (1 block)	1+	None	1943	12	Yes	Patrolman
63	D W.	39	1931	½ yr	½ yr	I C (1 block), coldness	3+	Gangrene, left big toe, left 5th toe	1943	12	Yes	Furrier
64	J H	34	1931	1½ yrs	1½ yrs	Severe rest pain	2+	Extensive infected ulcer of foot	1943	12	Yes	Iron worker
65	I K	30	1932	15 yrs	15 yrs	I C (2 blocks), coldness	4+	Ulcer	1943	11	Yes	Furrier
66	A Z	20	1932	2 yrs	2 yrs	Pain in right toes, phlebitis	1+	None	1943	11	Yes	Businessman
67	I B	30	1931	1 yr	1 yr	I C, numbness	2+	None	1942	11	Yes	Salesman
68	D F	25	1931	8 yrs	8 yrs	I C (1 block)	1+	None	1942	11	Yes	Doctor
69	A K	35	1927	2 yrs	2 yrs	I C, rest pain	3+	Ulcer, dorsal surface right big toe	1935	11	Yes	Shoe machine operator
70	S K	24	1931	4 yrs	4 yrs	I C (8 blocks), pain in big toes	2+	Ulcer, unhealed wound, right big toe	1942	11	Yes	Grocery clerk
71	J G	29	1932	½ yr	½ yr	I C (½ block)	2+	None	1943	11	Yes	Salesman
72	I S	32	1932	10 yrs	10 yrs	I C (2 blocks), rest pain	4+	None	1943	11	Yes	Manufacturer
73	L H	26	1930	2 yrs	2 yrs	I C, rest pain, phlebitis	1+	None	1941	11	Yes	Telephone mechanic
74	H S	35	1930	9 yrs	9 yrs	I C, coldness	2+	None	1941	11	Yes	Painter
75	L S	29	1930	8 yrs	8 yrs	Inflammation of legs, phlebitis, numbness of toes, intermittent claudication	2+	None	1941	11	Yes	Jeweler
76	E K	40	1932	2 yrs	2 yrs	I C (½ block)	3+	None	1943	11	Yes	Tailor
77	N S	35	1934	8 mos	8 mos	I C (4 blocks)	2+	None	1944	11	Yes	Musician
78	H W.	24	1933	11 yrs	11 yrs	Intermittent claudication	3+	None	1944	11	Yes	Operator
79	H C	32	1933	4 yrs	4 yrs	I C (1 block), severe rest pain	4+	Unhealed wound, outer side right ankle	1943	10	Yes	Ticket agent
80	C N	34	1933	4 yrs	4 yrs	I C (1½ blocks), coldness	1+	None	1943	10	Yes	Operator
81	B H	39	1931	3 yrs	3 yrs	I C (½ block)	3+	None	1941	10	Yes	Businessman
82	H B	44	1934	2 mos	2 mos	I C, rest pain	+	Gangrene, left 1st toe	1944	10	Yes	Elevator operator
83	I G.	40	1934	8 mos	8 mos	I C, rest pain	+	Gangrene, right 1st toe	1944	10	Yes	Clerk
One Amputation												
84	M G	27	1924	3 yrs	3 yrs	Pain	1+	None	1944	20	No	
85	H E.	38	1926	3 yrs	3 yrs	Pain	3+	Ulcer	1943	17	Yes	Musician
86	D L	29	1926	4 yrs	4 yrs	Pain, ulceration r thumb	4+	Gangrenous ulcer, tip right thumb	1943	17	Yes	Dentist
87	A S	38	1926	13 yrs	13 yrs	Coldness	2+	None	1943	17	No	
88	M R	27	1927	9 yrs	9 yrs	Pain left hand	2+	Gangrene, ulcer, tip left index finger	1943	16	Yes	Machine operator
89	N D	28	1927	14 yrs	14 yrs	I C (3 blocks)	3+	None	1943	16	Yes	Cashier
90	L E	28	1928	7 yrs	7 yrs	I C (1 block)	2+	None	1943	15	No	
91	S W.	30	1927	4 yrs	4 yrs	Rest pain, ulcer left 2d toe	3+	Superficial ulcer, left 2d toe	1942	15	Yes	Barber
92	J N	36	1929	4 yrs	4 yrs	Pain right big toe, I C, rest pain	4+	Gangrene, inner side right big toe, tip of toe	1944	15	Yes	Confectionery store
93	E M	31	1929	1 yr	1 yr	Intermittent claudication	3+	Unhealed wound on stump	1943	14	Yes	Executive
94	I B	33	1928	15 yrs	15 yrs	I C (1½ blocks), rest pain	3+	Ulcer, left shin, side of big toe and 3d toe	1942	14	Yes	Dress operator
95	M H	43	1929	½ yr	½ yr	Pain	2+	Ulcer	1943	14	Yes	Wood carver
96	F S	30	1930	7 yrs	7 yrs	Pain left hand, severe rest pain	3+	Unhealed ulcer, 1st and 3d finger, right index finger	1943	13	Yes	Farmer
97	B B	27	1929	18 yrs	18 yrs	I C (1 block), cramps in hands	3+	None	1940	12	No	
98	S H.	31	1930	3 yrs	3 yrs	I C, rest pain	3+	Small ulcer, outer side left foot, ulcer, stump right leg	1940	10	Yes	Baker
Two Amputations												
99	C H	22	1927	10 yrs	10 yrs	Pain right wrist, coldness	3+	None	1944	17	Yes	Executive
100	P K.	27	1929	10 yrs	10 yrs	Pain in hand	3+	None	1941	12	Yes	Businessman

* I C, intermittent claudication

† Explanation of degree of circulatory impairment 4+, femoral, popliteal, anterior tibial and posterior tibial arteries closed, 3+, femoral open, popliteal, anterior tibial and posterior tibial arteries closed, 2+, femoral and popliteal open, anterior tibial and posterior tibial arteries closed, 1+, femoral, popliteal and one foot pulse open, one foot pulse closed

has there been any progression of the vascular disease since the use of tobacco was stopped, and not 1 patient in this group required an amputation. What is true of this 100 cases is also true of several hundred other patients with thromboangiitis obliterans followed less than ten years.

No measures of any kind to combat infection were used in this group of patients. None were prohibited from eating rye bread or using rye whisky, nor were there any other restrictions of diet. A few of them showed signs of epidermophytosis between the toes. Thus, if any of the foregoing factors were responsible for the disease, progression should have taken place. Surely, it cannot be a coincidence that in not 1 of the 100 cases studied was any progression observed. This fact should be contrasted to the uniform progression of the disease in patients who continue smoking.

The evidence is convincing that the use of tobacco is the sole factor constantly associated with the occurrence

and the progression of thromboangiitis obliterans. However, it is also clear that millions of men and women smoke incessantly without developing this disease. Why is it that a practice which so many indulge with impunity is so harmful to a few? Certainly a constitutional factor, a special sensitivity of the blood vessels to the effects of tobacco, must also be present. Only those who have such a constitutional factor will develop thromboangiitis obliterans from smoking.

The rarity of thromboangiitis obliterans in the female sex indicates that women either have a biologic protection against the effects of tobacco or fail to inherit the constitutional factor necessary to make them susceptible. That a biologic protection is present appears unlikely. The 12 women in my series who presented typical instances of thromboangiitis obliterans differed in no apparent way from other members of the female sex. Whatever biologic protection other women have against the effects of tobacco should also have been present in

these 12 individuals. It is tempting to regard thromboangiitis obliterans as a sex linked disease, similar to hemophilia and color blindness. In such conditions the disease is transmitted through the female as a recessive trait and appears only in the male. Under the rare conditions in which the father has the disease and the mother carries it as a recessive trait, the daughter may show the condition. Unfortunately, in no instance have I been able to demonstrate such an occurrence in the parents of the female patients with thromboangiitis obliterans. For the present it must remain only a surmise that the constitutional factor which is responsible for thromboangiitis obliterans is inherited along sex linked lines.

TEN CASE HISTORIES

CASE 1.—J. W., an upholsterer, was first seen in December 1929, at which time he was 26 years old. He gave a history of intermittent claudication in the left leg for five years. Four months previously he had developed gangrene of the left second and fourth toes. He began to smoke at the age of 15, averaging about twenty cigarettes a day. The patient was well nourished. The general physical examination was negative. The circulation in the upper extremities was normal. Both femoral and both popliteal pulsations were present. The right anterior tibial and dorsalis pedis pulses were present. The right posterior tibial pulse was absent. There was no pulsation in the left foot. The left foot showed pronounced rubor and was very cold. There was gangrene of the left second and fourth toes. The oscillometer readings were right calf 4, right ankle $1\frac{1}{2}$, left calf $\frac{1}{2}$, left ankle 0. He stopped smoking and was treated with intravenous injections of 5 per cent saline solution. The gangrenous lesions separated, leaving ulcers on the toes. By May 1930 the ulcers were healed and he was able to walk five blocks without stopping. In November 1930 he could walk ten blocks and he returned to work. At that time the pulsations in the foot were the same as previously noted. The oscillometer readings were greatly improved. They were right calf $9\frac{1}{2}$, right ankle 4, left calf $3\frac{1}{2}$, left ankle faint. Treatment was discontinued at this time. The patient has remained in good condition and has been working regularly during the past twelve years. He has had no recurrence of circulatory trouble in the legs. He was last examined in August 1942. At this time the right anterior tibial and dorsalis pedis pulsations were present as before. No other pulse was present in either foot. The oscillometer readings were right ankle $2\frac{1}{2}$, left ankle $\frac{1}{2}$.

CASE 2.—D. P., a merchant, was first seen in April 1930, at which time he was 32 years old. He gave a history of migrating phlebitis of both legs for one year. For three months he had ulcers on both great toes and the right second toe. He began to smoke at the age of 15, smoking about twenty cigarettes a day. He was well nourished. The general physical examination was negative. The circulation in the upper extremities was normal. Both femoral and both popliteal pulses were present. All normal pulsations were absent in both feet. On the outer side of the left ankle there was a peroneal pulsation. There were two gangrenous ulcers on the left great toe, each of which measured 2 cm. in diameter. There was a gangrenous ulcer of the same size on the right great toe and a smaller ulcer on the right second toe. The oscillometer readings were right calf $4\frac{1}{2}$, right ankle $\frac{1}{4}$, left calf $5\frac{1}{2}$, left ankle $2\frac{1}{2}$. The patient was treated with cessation of smoking, bed rest and injections of 5 per cent sodium chloride solution. His condition improved steadily. By January 1931 all ulcers were completely healed, he was able to walk three blocks without discomfort and he had returned to work. Saline injections were continued until October 1932. At this time good pulsations were present on the outer side of both ankles. The oscillometer readings were right ankle $1\frac{1}{2}$, left ankle $2\frac{1}{2}$. Treatment was discontinued at that time because the circulation was regarded as satisfactory and the patient had no symptoms.

He has received no treatment since then. He has continued at his work without interruption for the past ten years. He was last examined in August 1942. At this time the left posterior tibial and left dorsalis pedis pulses had returned. Both peroneal pulsations were present as before. The oscillometer readings were right ankle $1\frac{1}{2}$, left ankle 3.

CASE 3.—E. R., an insurance agent, was first seen in the outpatient department of the Mount Sinai Hospital in November 1924, at which time he was 23 years old. He gave a history of intermittent claudication in both legs for three months. For ten weeks he had had severe pain in the right foot, which had made it impossible for him to work. There was no ulceration. He was well nourished. The general physical examination was negative. The left radial and right ulnar pulses were absent. The right radial and the left ulnar pulses were present. Both femoral and the left popliteal arteries were open. The right popliteal artery was closed. The left posterior tibial pulse was present. The left anterior tibial and dorsalis pedis were absent. There was no pulse in the right foot. He stopped smoking and received injections of hypertonic saline solution, at first three times a week and later less frequently. Treatment was continued for about a year. He has had no treatment since the end of 1925. He has remained in excellent condition and has had no further trouble with his feet. He is able to do his work as a life insurance agent, which requires him to climb stairs a good deal during the day. He was last examined in May 1943. He reported that he walks a mile easily and is still working as an insurance salesman. Examination showed the right radial pulse open; the right ulnar pulse was closed; the left radial pulse was closed; the left ulnar pulse was open; good posterior tibial pulses were present in both legs. The oscillometer readings were right calf $3\frac{1}{2}$, right ankle $1\frac{1}{4}$, left calf 5, left ankle $2\frac{1}{2}$.

CASE 4.—J. M., a garage mechanic, was first seen in February 1926, at which time he was 26 years old. He gave a history of migrating phlebitis in both legs for two years. For eight months there had been severe pain in the left ankle, and he walked with a decided limp. He smoked twelve cigarettes a day. He was well nourished. The general physical examination was negative. The circulation in the left upper extremity was normal. The right radial was closed, the right ulnar was open. Both femoral and the right popliteal arteries were open. The left popliteal artery was closed. The right posterior tibial pulse was good. There was no other pulse in the right foot and no pulse in the left foot. The left foot was extremely cold and deeply cyanotic. There were no ulcers. The oscillometer readings were right calf 8, right ankle 5, left calf $1\frac{1}{2}$, left ankle very faint. He stopped smoking and was treated with intravenous injections of hypertonic salt solution from February 1926 to February 1928. The symptoms cleared up completely and he returned to work and has continued to work ever since. There has been no recurrence of trouble with his legs. He was last examined in January 1944. At this examination all pulses were present in the right foot. There was a small left posterior tibial pulse. There was no other pulse in the left foot. Both feet were warm and normal in color. The oscillometer readings were right ankle 4, left ankle $1\frac{1}{4}$.

CASE 5.—J. S., a painter, was first seen in October 1928, at which time he was 36 years old. He gave a history of pain and coldness in the left leg for two years. He had intermittent claudication after walking one block. He smoked ten cigarettes a day. He was well nourished. The general physical examination was negative. The left ulnar pulse was absent. All other pulses were present in the upper extremities. Both femoral and the right popliteal arteries were open. The left popliteal artery was closed. There was no pulse in either foot. The left foot presented typical glossy redness in the dependent position. The oscillometer readings were right calf $1\frac{1}{2}$, right ankle very faint, left calf very faint, left ankle zero. He stopped smoking and was treated with injections of hypertonic salt solution twice a week until October 1930. At this time he was able to walk ten blocks easily without pain. Both

feet were warm. He returned to his work as a painter and has been working regularly since then. He has been examined periodically. He was last examined in April 1943. At this time he reported that he had no symptoms in his legs. Both popliteal arteries were now open but there was still no pulse in either foot. However, the oscillometer readings had shown considerable improvement and were now right calf 4, right ankle $1\frac{1}{2}$, left calf 3, left ankle 1.

CASE 6.—M. G. was first seen in January 1922, at which time he was 28 years old. He had severe pain in his left foot for six weeks and during this time he had an extensive ulcer on the left first toe. He smoked fifteen cigarettes daily and continued to do so. In spite of conservative treatment gangrene of the left lower extremity developed and a left mid-thigh amputation was done at the Mount Sinai Hospital in 1924. The stump healed by primary union. At this time he stopped smoking. He was well nourished. The general physical examination was negative. The left lower extremity was amputated through the midthigh. The right femoral and popliteal arteries were open. The right posterior tibial pulse was good. The right anterior tibial and dorsalis pedis pulses were absent. There was a good pulse on the outer side of the right ankle. The oscillometer reading was right ankle 5. The patient was told to refrain from smoking. He has been given no treatment and has been examined every year since 1924. On his last examination in June 1944 he was in excellent general health. The right posterior tibial and peroneal pulsations were present as they had been throughout the twenty years of observation. The oscillometer reading was right ankle 5. There was no evidence of any progression in the patient's condition.

CASE 7.—J. E., a millinery operator, was first seen in June 1929, when he was 36 years old. He gave a history of severe pain in the right foot, and for four weeks gangrene had been present on the right first toe. He smoked fifteen cigarettes a day. He was well nourished. The general physical examination was negative. The circulation in the upper extremities was normal. Both femoral and the left popliteal arteries were open. The right popliteal artery was closed. All pulsations were present in the left foot. There was no pulsation in the right foot. There was an area of gangrene 1 cm. in diameter on the base of the right great toe. There was a gangrenous ulcer 2 cm. in diameter on the outer side of the right fourth toe. The oscillometer readings were right calf very faint, right ankle 0, left calf 6, left ankle 3. The patient stopped smoking. He was treated with intravenous injections of hypertonic salt solution until early in 1932. His condition improved strikingly. His foot healed and he was able to walk twenty blocks without stopping. He has continued to be examined periodically, the last time in June 1943. At this time all pulses were present in the left foot. There was no pulse in the right foot. The oscillometer readings were right calf 2, right ankle $\frac{1}{2}$, left ankle $3\frac{1}{2}$. He had remained in excellent condition throughout the eleven years since treatment was stopped.

CASE 8.—H. K., a painter, was first seen in the outpatient department of the Mount Sinai Hospital in July 1930, at which time he was 38 years old. He gave a history of intermittent claudication in the left leg for eight months. He was unable to walk more than three blocks without stopping. There was no history of migrating phlebitis or ulcerations of the toes. He smoked about twenty cigarettes a day. He was well nourished. The general physical examination was negative. All pulsations were present at both wrists. The right femoral and popliteal arteries were open; the left femoral and popliteal arteries were closed. All normal pulsations were present in the right foot. There was no pulsation in the left foot. The oscillometer readings were right calf $3\frac{1}{2}$, right ankle $1\frac{1}{2}$, left calf $\frac{1}{4}$, left ankle 0. He stopped smoking and was treated for one year with saline injections. He has had no treatment since then. When last examined in May 1943 he was in good condition, working as a painter, and not smoking. He was able to walk fifteen blocks without stopping. All pulses could be felt in both feet. The oscillometer readings were right calf 10, right ankle $3\frac{1}{4}$, left calf $2\frac{1}{2}$, left ankle $1\frac{1}{4}$.

CASE 9.—D. S., a merchant aged 28, was first seen in July 1930. Intermittent claudication had been present in both legs for two years, and for seven weeks he had a painful ulcer on the right foot. He was smoking twenty cigarettes daily. He was well nourished. The general physical examination was negative. The circulation in the upper extremities was normal. Both femoral pulsations were small, both popliteals absent. There was no pulse in either foot. The right foot was cold and red, and on the dorsal surface there was a necrotic ulcer 3 by 4 cm. in diameter. The oscillometer readings were left calf faint, left ankle 0, right calf faint, right ankle very faint. The patient stopped smoking and was treated with intravenous injections of 5 per cent sodium chloride solution. In February 1931 the ulcer was healed and he could walk four blocks slowly without pain. Treatment was stopped in August 1932. He has been examined regularly every year since then. He has continued in excellent health, without recurrence of symptoms. He has been working regularly. When last examined, in August 1943, there was no pulse in either foot. The oscillometer readings were both calves $2\frac{1}{2}$, both ankles $\frac{3}{4}$.

CASE 10.—L. B., a salesman, was first seen in April 1931, at which time he was 31 years old. He gave a history of intermittent claudication in both legs for one year. He smoked twenty cigarettes a day. He was well nourished. The general physical examination was negative. The circulation in the upper extremities was normal. Both femoral and both popliteal arteries were open. The right anterior tibial and dorsalis pedis pulsations were present. There was a good pulse on the outer side of the right ankle. The right posterior tibial pulse was absent. There was no pulse in the left foot. The left foot presented typical rubor in the dependent position. The oscillometer readings were right ankle 2, left ankle 2. He stopped smoking and was treated with saline injections with diminishing frequency for a year. At this time he was able to walk ten blocks without any pain, and he returned to work. He has been examined periodically, the last time in July 1942. At this time he had no symptoms in his legs. All pulses were present in the right foot. The left anterior tibial pulse was present. There was no other pulse in the left foot. The oscillometer readings were right ankle 3, left ankle $2\frac{1}{2}$. He had never had any recurrence of symptoms.

SUMMARY AND CONCLUSIONS

One hundred patients with thromboangiitis obliterans have been personally followed more than ten years. All these patients stopped smoking at the beginning of treatment and have not resumed since.

In all of them the disease has remained completely arrested following the initial period of treatment.

Thromboangiitis obliterans is caused by smoking in individuals constitutionally sensitive to tobacco.

1126 Park Avenue.

Discovery of Oxygen.—No one could have been more surprised, he tells us here himself, than the large hearted, liberal minded, nonconformist English clergyman Joseph Priestley, whose curiosity actually brought him credit for the discovery of oxygen on Aug. 1, 1774. Always a stubborn believer in the false "phlogiston" theory (which held that heat was a ponderable substance), Priestley called his new gas "dephlogisticated air"; Lavoisier gave it the name "oxygen" and made it a foundation stone of modern chemistry. These early chemists, understandably enough, found difficulty in distinguishing between surprisingly different kinds of new "airs" and "gases." "Empyrical air" was the name given to oxygen by Carl Wilhelm Scheele (1742-1786), a poor Swedish apothecary, discoverer of chlorine, glycerin, barium, ammonia and numerous organic acids, whose posthumous notes reveal that he had prepared oxygen before Priestley.—The Autobiography of Science, edited by Forest Ray Moulton and Justus J. Schifferes, New York, Doubleday, Doran & Co., Inc., 1945.

OUTBREAK OF FOOD POISONING DUE TO SALMONELLA MONTEVIDEO IN AN ARMY GENERAL HOSPITAL

VARIED CLINICAL MANIFESTATIONS AND DEMONSTRATION OF SALMONELLA AND HETEROPHILE AGGLUTININS

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This is a report of an outbreak of food poisoning due to *Salmonella montevideo* affecting both the organizational personnel and the patient population of an army general hospital. The clinical features were varied, and isoagglutinins and heteroagglutinins were demonstrated in the blood of infected persons.

The first cases appeared during the night of April 11-12, 1944 with manifestations of an acute, prostrating gastrointestinal disturbance. Within twenty-four hours 267 persons had the ailment. In the next twenty-four hours 70 more cases appeared, and in the third twenty-four hour period an additional 13 cases developed. In all 350 persons were afflicted, and of these 303 were patients. Of the remainder, 45 were enlisted corpsmen and 2 were nurses of the hospital staff. It was found that, of the three hospital messes (officers', enlisted men's and patients') only the patients' mess was implicated. Of the 350 individuals affected 346 had eaten food from that mess, and 3 of the remaining 4 had had contact with food from the patients' mess in serving it or cleaning plates that had contained it. In 1, connection with the patients' mess could not be established.

Food served at supper of April 11 was responsible for the outbreak. All preceding meals could be excluded by virtue of the fact that 39 patients had been transferred to another hospital after lunch of that day, none of whom became sick. Unfortunately, samples of food eaten at the supper meal were unavailable the next morning. This precluded a direct bacteriologic study of the food consumed. However, analysis of the dietary histories of the affected persons permitted the conclusion that at least one of three pans of rice pudding had been the immediate infected source. Preparation of the pudding had been completed by 4 a. m. of April 11. It had then been left in flat field-range pans at kitchen temperature until served that afternoon at 4 o'clock and later. There had been twelve hours or more opportunity for contamination and incubation. Further consideration as to the possible ultimate source of infection is given later.

CLINICAL FEATURES OF OUTBREAK

The extremes of calculated incubation time from the offending meal to the onset of symptoms was from three to sixty-six hours, and more than half began within fifteen hours or less. The onset was abrupt,

with abdominal cramps and watery diarrhea. There were two to twenty liquid evacuations in the first twenty-four hours. Nausea and vomiting were usual, and toxic manifestations in the form of headache, fever, chilliness or chills, generalized aches and pains (particularly of the lumbar region), rapid pulse and a flushed, prostrated appearance were the rule. The abdomen was diffusely tender. Fifty-six patients (about 15 per cent) had herpes febrilis, and this was sometimes pronounced and extensive. The average duration of acute symptoms was three to six days, with fever ranging from 102 to 104 F. In a few cases the temperature went above 105 F. The diarrhea lasted three to five days usually but in some cases persisted to a mild degree for as long as a week or more. Almost all of the duty personnel affected had to be hospitalized.

An interesting feature of the outbreak was the occurrence of 19 cases (about 6 per cent) with bronchopulmonary involvement. Of these, 14 showed roentgenographic pulmonary changes interpreted as interstitial pneumonia, 4 had evidence of acute bronchitis and 1 had a frank bronchopneumonic process with bloody sputum which was positive for *Salmonella* on several examinations. In most of the cases with pneumonia the initial acute gastrointestinal phase of the sickness was followed by a period of several days during which the temperature was normal or almost normal. The temperature then rose again, accompanied by complaints of cough, expectoration and chest pain. Physical findings over the chest were usually minimal. Within a week the temperature returned to normal and x-ray evidence of resolution set in.

A number of patients, after the early acute febrile episode, settled down to a week or more of low grade fever. Some of these had evidence of bronchitis, but in others there was no apparent pulmonary complication. Only 1 developed a palpable spleen, and none had rose spots. In contrast to the early mild polymorphonuclear leukocytosis of the acute phase, at this time these patients showed leukopenia with relative lymphocytosis. Another feature of this group was a rather persistent asthenia and a "washed out" appearance, with fleeting aches and pains.

Two patients had bacteremia with blood culture positive for *Salmonella*. Both had evidence of interstitial pneumonia during their course, which tended to be low grade and prolonged. No suppurative foci developed.

One patient, who also had bacteremia, had urticaria about the knees and left elbow which came on ten days after onset and lasted two days. At the height of his bronchopneumonic process the patient with *Salmonella* bronchopneumonia developed three small subcutaneous nodules on the anterior aspect of the left thigh and one on the volar aspect of the right forearm. The former disappeared in a day, but a month later the one on the right forearm was still present. It was 2 to 3 mm. in size, attached to fascia but not to the overlying skin and only slightly tender; the skin was not discolored.

Several patients complained of sharp occipital and cervical pains radiating to the shoulder girdle. Two had similar type pains involving the trunk. These pains, which were interpreted as neuritic or radicular in nature, came on within a few days of onset of the illness and lasted up to a week.

In the entire group of 350 cases there were no deaths, and clinical recovery, although somewhat prolonged in some, was nevertheless complete.

The authors are assistant clinical professor, associate and assistant respectively in the Department of Internal Medicine, Long Island College of Medicine, Brooklyn, on leave of absence. Lieut. Col. M. L. Rakieten and his staff performed the laboratory work and prepared the bacteriophage. Final identification of the organism concerned as *S. montevideo* was reported by the First Medical General Laboratory. Professional officers of the medical and surgical services assisted in the accumulation of data. Capt. Paolo Revera gave aid during the outbreak. Capt. Peter J. Giranito made the x-ray interpretations.

LABORATORY FINDINGS

Stool cultures could not be made on all patients. However, in over 100 cases initial stool culture was found positive for a nonlactose fermenter belonging to the Paratyphosus C group of *Salmonella*. The organism was found to agglutinate with *Salmonella cholerae* suis antiserum and was later more specifically identified as *S. montevideo*. Two patients had the same organism in the blood and 1 in the sputum, as already noted. Urine cultures on several patients were negative. In order to determine whether significant cross infection was occurring, stool cultures were made on a series of patients who had not fallen ill. All were negative. Further, stool cultures were also made on unaffected mess personnel to exclude any subclinical cases or carriers. These too were entirely negative.

Military requirements, necessitating early return to duty, made it impossible to carry out serial stool cultures on a great number of those afflicted. This had to be confined almost exclusively to organization personnel, particularly since these were almost all food handlers. In 28 of these, serial study was uninterrupted and it was possible to note when the stool cultures turned negative. In these 28, stool cultures remained positive for from two to seven weeks after onset of the disturbance, 21 for four weeks or more. By the end of the seventh week all had become negative. It was not at all unusual for one or even two weekly cultures to be negative with a return then to positive. With 2 exceptions all were permitted to return to food handling after three or more weekly stool cultures in succession had been negative. One man, a cook, suspected of a possible chronic carrier state (even though he met the aforementioned criteria), was permanently excluded from food handling. His role as a possible source is considered later.

During the first week of the outbreak, tests were made for the presence of serum *Salmonella* agglutinins in 25 cases. With 1 exception all were completely negative. This man, with serum *Salmonella* agglutinins in a dilution of 1:320, was suspected of being a carrier, as noted later. Subsequent *Salmonella* agglutination tests were carried out in a number of these cases as well as others not tested in the first week. In from three to six weeks *Salmonella* agglutinin titers ranging from 1:50 to 1:800 were found. Subsequent to the sixth week the titers decreased. A number of individuals not affected with the illness were also tested and showed no agglutinins. It was also interesting to find that some patients developed agglutinins for sheep's red blood cells in titers ranging from 1:64 to 1:512. These too showed a rise within the first few weeks, followed by a decrease in strength. However, there was no consistent parallelism in the development or subsidence of *Salmonella* and heterophile agglutinins, nor was any clear correlation with clinical course evident.

TREATMENT

Symptomatic treatment of these patients consisted in complete bed rest, liquid diet and the administration of antidiarrheal medication such as bismuth and paregoric. When dehydration and toxicity were severe, intravenous infusions of glucose in saline solution were given. A few were given castor oil at the onset of the trouble but it had no effect in aborting the process. More than half of the patients were given full doses of sulfaguanidine during the early stages of the illness. There was no appreciable benefit, either in clinical course or in rendering the stools negative more quickly,

as compared with those receiving no sulfonamide therapy. Sulfadiazine was also given to a group of patients in an attempt to turn stool cultures negative more quickly. It was entirely ineffective. In a few cases bacteriophage was given. Its value could not be assessed, although in 2 cases its administration was followed by an immediate change from persistently positive to negative stool cultures.

ULTIMATE SOURCE OF INFECTION

The cook who prepared the rice pudding was closely questioned and gave a history of two to four loose stools daily since 1929. A routine stool culture on him a month prior to the outbreak had been negative. He came down with a perfectly typical attack of food poisoning after an eight hour incubation period. Yet during the first week of illness (April 17) his serum was positive for *Salmonella* agglutinins in a dilution of 1:320 at the same time that *Salmonella* agglutination tests on 24 other individuals were entirely negative. At the same time he showed a heterophile agglutinin titer of 1:128. His isoagglutinins and heteroagglutinins rose to 1:400 and 1:256 respectively and then fell to 1:200 and 1:32. It is entirely possible, then, that this man was a chronic carrier and transmitted infection to one portion of the pudding directly or to the pan in which it was put. His carrier state, if present, was apparently not accompanied by appreciable immunity to the infection. Subsequent more thorough clinical and x-ray study resulted in a diagnosis of spastic colon. Six stool cultures were persistently positive between April 14 and May 20 in spite of two courses of sulfaguanidine (54 Gm. from April 13 to 17 and 60 Gm. from April 20 to 24). On May 23 and 24 he was given a total of 12 cc. of bacteriophage orally. This was followed by four negative stool cultures from May 31 to June 16. Nevertheless, as noted previously, he was entirely excluded from food handling.

Various foods, including the ingredients used in making the rice pudding, were cultured, unfortunately not from the same lots used in making the offending food, for none was available. Powdered and evaporated milk, sugar, egg powder, raisins, bread, water, meat, all were negative. It is not likely, however, that an original contamination of ingredients was the source of trouble, for sufficient heat was used in the making of the pudding to kill effectively any enteric organisms. It seems much more reasonable that inoculation of the food occurred in the twelve hour period during which it was kept in pans at kitchen temperature. Contamination by rodents was not considered probable. This could hardly have occurred after the preparation of the pudding in view of the continuous activity of personnel in the kitchen. An original pollution of ingredients, such as is possible in any storeroom, would probably have been eliminated in the process of cooking, as already noted.

SUMMARY AND CONCLUSIONS

1. An outbreak of food poisoning due to *Salmonella montevideo* affected 350 individuals of the patient population and organizational personnel of an army general hospital.

2. The clinical manifestations included pronounced gastrointestinal upset, severe prostration and toxicity, high fever, herpes (15 per cent), bacteremia (2 cases), neuritis and bronchopulmonary involvement (6 per cent). Of the 19 cases with bronchopulmonary involvement, 14 had interstitial pneumonia, 4 bronchitis and 1 a frank *Salmonella* bronchopneumonia with positive

sputum. Two patients had skin manifestations (urticaria and subcutaneous nodules), and a number of cases showed a postacute phase characterized by low grade fever, asthenia, fleeting aches and pains, and leukopenia with relative lymphocytosis. There were no deaths, and no cross infection occurred.

3. The infection gave rise to both isoagglutinins and heteroagglutinins. These did not necessarily parallel each other nor was there any clear correlation between the development of agglutinins and the clinical course. Salmonellosis may thus be one cause of a positive heterophile agglutination test.

4. Full doses of sulfaguanidine were entirely without effect either in ameliorating the clinical condition or in rendering the stool cultures negative. Sulfadiazine was also unsuccessful in converting positive stool cultures. Bacteriophage was tried in only a few cases and was successful in 2.

5. In a group followed with weekly stool cultures none were positive for more than seven weeks whether treated or untreated. Intermittent stool negativity was not unusual.

6. The immediate source of infection was rice pudding allowed to stand at kitchen temperature for twelve hours or more. The evidence suggests that the cook who prepared the pudding may have been a chronic carrier.

HEPATIC DAMAGE IN INFANTILE PELLAGRA

AND ITS RESPONSE TO VITAMIN, LIVER AND DRIED STOMACH THERAPY AS DETERMINED BY REPEATED LIVER BIOPSIES

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During the last three years nearly 300 children suffering from acute malnutrition have been admitted to the Non-European Hospital, Johannesburg. More than 60 per cent of these infants manifested the clinical signs of pellagra.

In our experience vitamin therapy has not only failed to save the lives of more than 50 per cent of these children but in many instances we strongly suspected that it aggravated the disease and even hastened death.¹ Trowell,² prominent worker in this field, has also recorded the unresponsiveness of this disease to vitamin therapy, including nicotinic acid. In these circumstances, therefore, it was essential to seek some other method of saving the lives of children suffering from severe malnutrition.

Recent experimental work has revealed that in animals the liver is severely damaged by deficiencies or excesses of vitamins³ by diets containing low con-

centrations of proteins,⁴ by the presence or absence of certain amino acids⁵ or by a combination of these imbalances in the diet. However, Himsworth and Glynn⁶ have stated that there is no positive evidence that the liver in man is affected to any extent or in the same manner by dietary imbalances as has been shown to be the case in laboratory animals. Moreover, György in a recent review⁷ cautions against the premature application of these experimental findings to clinical medicine.

Sydenstricker and his collaborators⁸ have repeatedly suggested that the liver may be implicated in some way in the pathogenesis of pellagra. However, apart from the findings by investigators of some disturbances in hepatic function in pellagrins⁹ and the repeated recording of fatty livers in patients dying from this form of malnutrition who come to postmortem¹⁰ there has hitherto been no reliable evidence of the manner in which the liver may be damaged in pellagra or of the role of the liver in the production of the symptoms of this disease. The fatty liver observed in pellagrins at autopsy has usually been attributed either to the excessive imbibition of alcohol or to the severe diarrhea and secondary infection so frequently encountered in moribund pellagrins.

By a significant improvement in the liver biopsy apparatus described by Iversen and Roholm¹¹ as well as by a modification in the approach to the liver, we have to date performed more than 200 biopsies on human subjects without a single mishap. We are satisfied that this biopsy procedure is safe and that it is an indispensable procedure for diagnostic and research purposes, especially valuable in the study of nutritional diseases, in which we have shown that the pathologic processes affect the liver diffusely.

For the first time it is now possible to assess the degree of liver involvement in dietary deficiencies in man and to determine the response of the liver to various forms of therapy. Opportunities are now available for ascertaining the state of the human liver in the common deficiency diseases and of discovering whether the results of animal experiments are applicable to man. Although our knowledge concerning the production of liver disease in animals by dietary means is still fragmentary, nevertheless information is steadily accumulating to the effect that, under certain conditions, vitamins can aggravate the liver damage,¹² whereas proteins and various lipotropes have a beneficial effect.¹³ Despite this information the majority

1. Lillie, R. D.; Daft, F. S., and Sebrell, W. H.: Cirrhosis of the Liver in Rats on a Deficient Diet and the Effect of Alcohol, *Pub. Health Rep.* 58:1255, 1941. Himsworth and Glynn.⁶

2. Best, C. H., and Lucas, C. C., in Harris, R. S., and Thimann, K. V.: *Vitamins and Hormones*, New York, Academic Press, Inc., 1943, vol. 1, p. 1. Lillie, Daft and Sebrell.⁴ Himsworth and Glynn.⁶ McHenry and Patterson.¹³

3. Himsworth, H. P., and Glynn, L. E.: Toxicopathic and Trophopathic Hepatitis, *Lancet* 1:457, 1944.

4. György, P.: Experimental Hepatic Injury, *Am. J. Clin. Path.* 14:67, 1944.

5. Sydenstricker, V. P., and Thomas, J. W.: Some Factors in the Etiology of Pellagra, *South M. J.* 30:14, 1937. Sydenstricker, Schmidt, Geslin and Weaver.²³

6. Spies, T. D.; Sasaki, Y., and Cross, E. S.: Note on the Relation of Porphyrinuria to Human Pellagra, *South M. J.* 31:403, 1938.

7. Sydenstricker, V. P., and Armstrong, E. S.: Review of 44 Cases of Pellagra, *Arch. Int. Med.* 59:693 (May) 1937. Slateneanu, A., and others: On Hepatic Injury in Pellagra, *Compt. rend. Soc. de biol.* 116:1113, 1934. Sydenstricker and Thomas.⁵

8. Denton, J.: The Pathology of Pellagra, *Am. J. Trop. Med.* 5:173, 1925. Trowell.² Sydenstricker and Thomas.⁵

9. Iversen, P., and Roholm, K.: On Aspiration Biopsy of the Liver, with Remarks on Its Diagnostic Significance, *Acta med. Scandinav.* 102:1, 1939.

10. Engel, R. W.: The Relation of B Vitamins and Dietary Fat to the Lipotropic Action of Choline, *J. Nutrition* 24:175, 1942. Handler and Dann.²²

11. McHenry, E. W., and Patterson, Jean M.: Lipotropic Factors, *Physiol. Rev.* 24:122, 1944.

From the University of the Witwatersrand.

Dr. Selbe provided access to patients under his care. Drs. J. Inglis, L. Friedlander and E. Hammar gave their cooperation. Miss Winifred Till prepared the histologic material. Prof. Raymond A. Dart gave encouragement.

Abbotts Ltd. (Johannesburg) provided the liver extract used in this study.

1. Gillman, T.; Gillman, J.; Inglis, J.; Friedlander, L., and Hammar, E.: The Substitution of Whole Stomach Extract for Vitamin in the Treatment of Malignant Infantile Pellagra, *Nature, London* 154:210 (Aug. 12) 1944.

2. Trowell, H. C.: Infantile Pellagra, *Tr. Roy. Soc. Trop. Med. & Hyg.* 33:389, 1940.

3. Spellberg, M. A., and Keeton, R. W.: Production of Fatty and Fibrotic Livers in Guinea Pigs and Rabbits by Seemingly Adequate Diets, *Am. J. M. Sc.* 200:688, 1940. György and Goldblatt.¹⁴ Rich and Hamilton.¹⁵ Handler and Dann.²²

of nutritional diseases in man are still universally treated with large doses of synthetic or natural vitamin concentrates.

In previous studies, using material obtained by our biopsy procedure, we have demonstrated that, in adult and infant pellagrins, the liver is invariably damaged,

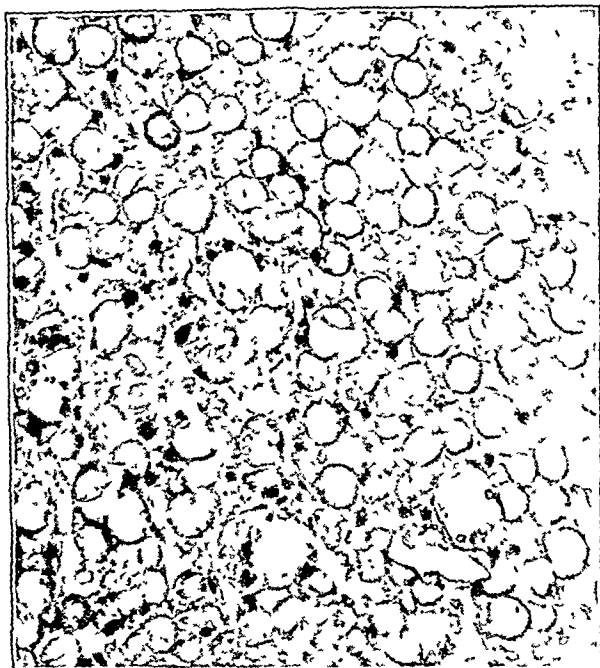


Fig 1—Liver in a severe case of infantile pellagra on the day of admission to hospital. Note the large fat globules in almost every liver cell (liver of the first category) $\times 320$

even in the early stages of this disease.¹⁴ In infants the liver damage is so severe that it could quite easily account for the majority of the clinical features and of the laboratory findings. From this it became evident that the therapeutic measures should be directed not only to the improvement of the clinical condition but also toward the restoration of normal liver structure. Moreover, it appears from our findings that it may be necessary to base the therapy in these diseases not on the present criteria but rather on others dependent on the nature of the liver structure as disclosed by liver biopsy. This seems particularly desirable since, as we shall demonstrate, the liver is frequently severely damaged at the time when patients treated for malnutrition are discharged as clinically cured.

In view of the confidence which most investigators have placed in specific vitamins for the treatment of malnutrition, it became incumbent on us to discover whether this confidence was justified.

This paper is devoted first toward the description of the histologic appearance of the liver in infant pellagrins on admission to the hospital and secondly to an analysis of the effectiveness of vitamins in the treatment of severe malnutrition. It will be shown on the basis of the reactivity of the liver, that vitamin therapy can be deleterious to these patients and that liver extract and especially dried stomach save the lives of infants and children.

14 György, P., and Goldblatt, H. Hepatic Injury on Nutritional Basis in Rats. *J. Exper. Med.* 70:185, 1939. Rich, A. R., and Hamilton, J. D.: Experimental Production of Cirrhosis of the Liver by Means of Deficient Diet. *Bull. Johns Hopkins Hosp.* 66:185, 1940. Gillman, T. and J. Inglis, Friedlander and Hamma¹

MATERIAL AND METHODS

This study is based on the examination of the liver of 20 children suffering from severe infantile pellagra. The salient features of this disease were edema affecting the upper and lower extremities and, in severe cases, the face, eyelids and genitalia; the edema was associated with pellagrous skin lesions on the legs, buttocks, back, arms and face, gray hair or alopecia, as well as patchy or diffuse dermal depigmentation. The stools were, as a rule, bulky, pale and foul smelling and contained much unsplit fat. The serum proteins, both albumin and globulin, were low and a mild microcytic anemia was common. This severe form of malnutrition is apparently identical with that described by other investigators.¹⁵

Within a few hours of admission to the hospital, liver biopsy was performed. All the patients received a diet which, for their age, was regarded as ideal on present standards. Seven were treated with vitamins orally or parenterally; of these 2 received nicotinic acid 100 mg., thiamine 10 mg. and vitamin C 50 mg. by injection twice daily, together with brewers' yeast and halibut oil by mouth. Five cc. of crude liver extract rich in the Cohn fraction was injected twice daily in another group of 7, while the remaining 6 were fed 10 Gm. of dried stomach (ventriculin) together with 10 cc. of tenth-normal hydrochloric acid once daily. Biopsies were taken of all the infants at weekly or ten day intervals for as long as they remained in the hospital.

The biopsy tissue was fixed in a number of fixatives, chiefly solution of formaldehyde U. S. P. diluted 1:10, Helly-osmic and alcoholic picro-formol. Frozen sections of formaldehyde fixed material were stained for

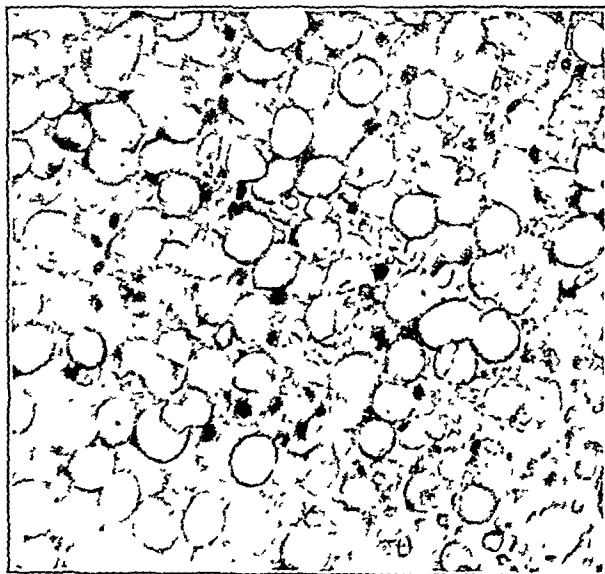


Fig 2—Liver of same patient as in figure 1 eight days after treatment with riboflavin, nicotinamide and a full ward diet. Note the deterioration in the liver as compared with figure 1. Patient ultimately died.

fat with scarlet red. Figures 1 to 8 are photomicrographs of frozen sections stained with scarlet red and Ehrlich's hematoxylin ($\times 320$).

15 Williams, C. D.: Nutritional Disease of Childhood Associated with Maize Diets. *Arch. Dis. Childhood* 8:423, 1933. Purcell, J. M.: Diet and Ill Health in the Forest Country of the Gold Coast, London, H. K. Lewis & Co. Ltd., 1939. Kark, S. L.: Adult and Infant Pellagra in South African Bantu. A Comparative Clinical Study, *South African J. M. Sc.* 5:106, 1943. Trowell²

STRUCTURE OF THE LIVER ON ADMISSION

Using as criteria the amount, distribution and the physical appearance of the fat in scarlet red stained preparations, the livers of infantile pellagrins on admission to the hospital have been classified into three main categories

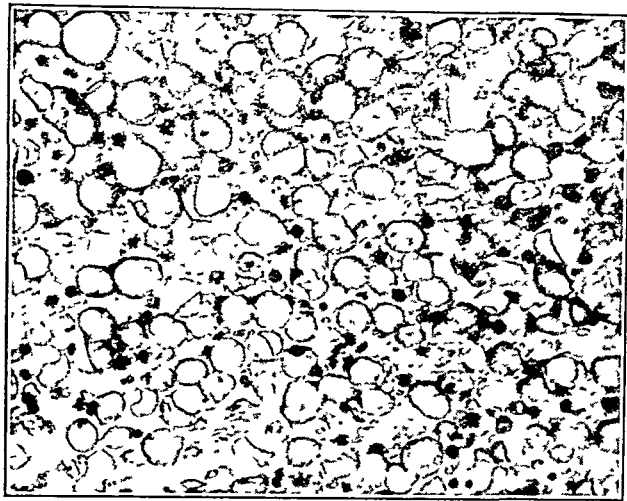


Fig. 3—Liver in another case of severe infantile pellagra on admission. This liver also belongs to the first category (see text)

In the first category were included 13 of 20 cases. The outstanding feature of these livers was the great abundance of fat distributed throughout the tissue (figs. 1, 3, 6). The fat was in the form of a single large pale-staining globule filling the entire cell. The nucleus was pushed to one pole and the cytoplasm was reduced to a narrow rim compressed against the cell membrane. Almost every single cell was involved in this severe fatty change. In fact, the livers were so fatty that they floated in the fixative. There was no necrosis or hemorrhage. Actually the liver was remarkably avascular. Despite the relatively large pieces of liver available, it was extremely difficult to identify any but the larger radicles of the hepatic veins. The sinusoids were closed, but their position was indicated by the rows of flattened Kupffer cells, which remained fat free except on rare occasions when only a small droplet was observed. The portal tracts were difficult to identify because of the great enlargement of the lobule caused by the massive concentration of fat in the individual cells. In some instances a moderate accumulation of round cells was present in the portal tracts (fig. 6). The reticulum was not thickened. In general the histologic appearance of this type of liver was such that it could be mistaken for perirenal fat.

This liver does not resemble in any way the livers described in acute or chronic carbon tetrachloride poisoning, but it did have a striking resemblance to the livers of rats after two hundred days on the diet of mealie pap and sour milk.¹⁶ This is the type of liver structure encountered in the children who die from infantile pellagra¹⁷ and must therefore be regarded as the most serious type of liver damage.

In the second category 7 livers are included. The livers in this group are not so closely similar to one another as in the first, but in general they had several features in common. In a liver typical of the group almost all the cells contain multiple coarse droplets of fat and many have a single large fat globule characteristic of the first group (fig. 4). The fat is not in the form of fine granules, nor is it localized in one pole of the cell. In many cells large vacuoles are present. The fat is stained very deeply and in many instances resembles colloid of the thyroid follicle. This peculiar staining reaction applies to the large droplets no less than to the small. Fat droplets may be present in the nuclei, which are irregular in size and undergo chromatolysis, especially in the cells situated near the portal tract. The sinusoids are for the most part closed, but here and there they may be seen as narrow irregular clefts lined by flattened Kupffer cells, some of which may contain a few droplets of fat. The portal tracts may in some instances contain a considerable number of round cells; the connective tissue is slightly more abundant than in the normal, and the collagen fibers are swollen. Iron is extremely scanty and, as a rule, is absent from the hepatic cells, although the Kupffer cells may sometimes contain a few irregular clumps at the extremity of their nuclei.

Only 1 of the livers has been classified as belonging to the third category. The reason for creating this category for a single specimen will become evident when the absorption of fat from the liver under treatment is examined. This liver was different from the others for a number of reasons, which will be considered seriatim.

There was a considerable quantity of fat in the liver, but many cells were fat free; the large fat globules

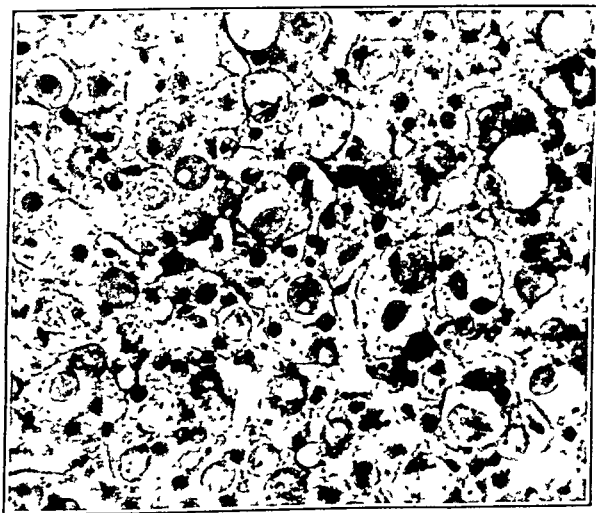


Fig. 4—Liver of same patient as in figure 3 eleven days after treatment with 10 cc of crude liver extract daily. Note reduction in the amount of fat, but many large globules are still present

typical of the first group were absent, but instead the cells for the most part contained dustlike particles of fat which gave to the liver a salmon pink color under low power. However, the largest globules of fat exceeded the size of the nucleus, and there were all intermediate sizes between these and the smallest visible particles

16. Gillman, J.; Gillman, T.; Gilbert, C. and Mandelstam, J.: The Production of Severe Hepatic Injury in Rats by Prolonged Feeding of Maize Meal Porridge (Mealie-Pap) and Sour Milk, to be published.
17. Trowell, H. C.: Pellagra in African Children, *Arch. Dis. Childhood* 12: 193, 1937; Infantile Pellagra.²

The fat stained a light yellow; the dense red staining fat was absent. Pigment was very scanty. The portal tracts were accentuated by the accumulation of round cells. The sinusoids were open in many areas, but the Kupffer cells did not contain much fat, as is the case in a comparable liver in adult pellagrins.

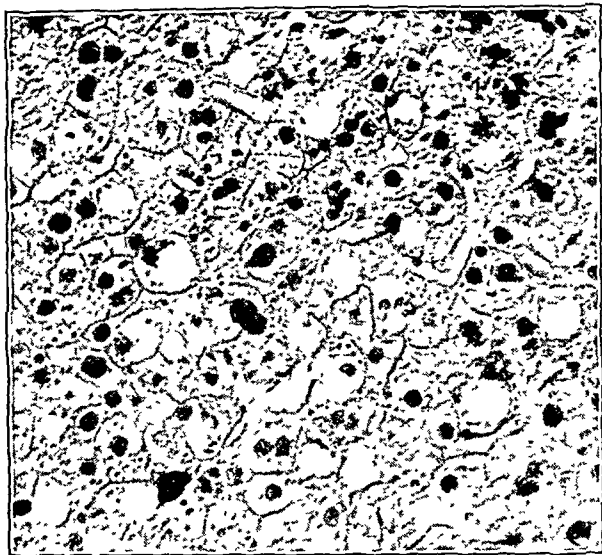


Fig. 5.—Liver of same patient as in figure 3 eighteen days after treatment with liver extract. Biopsy taken on day of discharge. Note continued improvement as compared with figure 4. Residual damage still present.

RESPONSE TO THERAPY

We have found the liver of an infant pellagrin to be infinitely more valuable in assessing the prognosis than the clinical picture or the laboratory findings. It soon became apparent that the state of the child on admission not only failed to indicate the gravity of the disease but was frequently misleading. However, an examination of the biopsy material from the liver invariably allowed us to arrive at an accurate prognosis.

Patients admitted to the hospital with a liver of the second category often recover after any therapy in which the diet is improved. Patients with the livers of the first category usually die. Since the clinical condition of the patient is misleading, in our opinion, the crucial test of the effectiveness of any specific therapy for infantile pellagra is the one wherein the therapeutic agent is able to restore to normal a liver of the first category. It is on this basis that we have compared the value of vitamins, liver extract and dried stomach.

Vitamins.—All the patients whose livers on admission were grouped in the first category died, irrespective of the nature of the vitamins administered. Actually, under vitamin therapy the livers deteriorated. A comparison of figure 1, a photomicrograph of the biopsy of the liver on admission, and of figure 2, the liver after eight days' treatment with 5 mg. of riboflavin twice a day and 50 mg. of nicotinamide intramuscularly, reveals that, if anything, the liver after treatment was even worse than on admission. It must be mentioned at this stage that some patients whose livers on admission were classified as belonging to the second category soon became worse on treatment with

brewers' yeast, nicotinic acid and riboflavin. Such patients invariably died.

Liver Extract.—Figure 3 depicts the state of the liver of an infant pellagrin on admission. The large fat globules in the liver cells indicate that this liver belongs to the first category. It is indeed seriously damaged and is comparable with figure 1, the liver of a patient treated with vitamins. At the end of eleven days on liver therapy there is a considerable reduction in the amount of fat in the liver (fig. 4). Many of the cells still contain a single globule of fat, but these are now smaller and stain much more intensely with scarlet red. The nuclei, which in these cells were previously flattened against the cell membrane, have now become round or oval and are diffusely stained with hematoxylin. Medium sized fat globules are present in many cells, while other cells contain large vacuoles, devoid of fat. Numerous cells with a single large fat free vacuole and a flattened nucleus are irregularly scattered throughout the section. The sinusoids are partially open in patches; the Kupffer cells are devoid of fat. The portal tracts are prominent, because of the massive accumulation of round cells.

The liver at this stage has improved as compared with the first specimen (fig. 3) and now belongs to the second category. A third biopsy on the same child eighteen days after admission reveals a further reduction in the amount of fat (fig. 5), but this is not so pronounced as the reduction in fat between the first and second biopsies. Many of the cells still contain single large fat globules, less intensely staining than those seen in the second biopsy. The number of cells without any fat and those with fat free vacuoles has increased; binucleosis is extremely common, and the nuclei are irregular in size and in staining reaction. Many sinusoids are open, and others are in the process of developing patent lumens. The portal tracts still

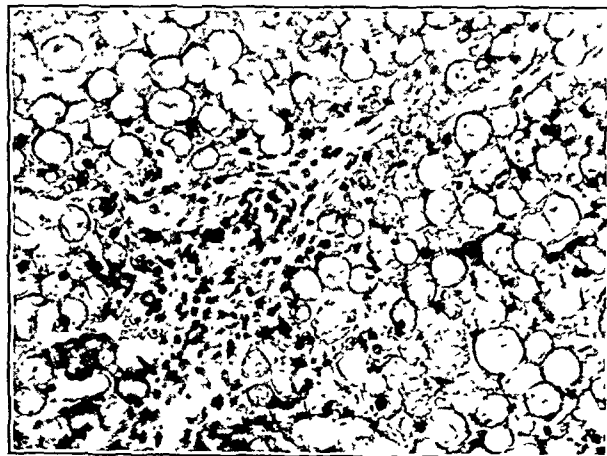


Fig. 6.—Liver of a third patient with severe infantile pellagra on admission. Degree of damage comparable with figures 1 and 3.

contain large numbers of round cells. At this stage the child was discharged as clinically cured.

It is evident that liver extract has definitely reduced the amount of fat in the liver, but the response is slow. Even when the patient was discharged there was so much residual liver damage that the liver was still classified as belonging to the second category.

Those patients who, on admission, had livers belonging to the second category, when treated with liver extract improved clinically, but even after twenty-one days large fat globules were still present in many of the cells.

From the foregoing it is evident that liver extract can improve a liver of the first category and so remove the fat that the liver now can be regarded as belonging to the second category. Moreover, such treatment can also remove some fat from livers belonging to the second category on admission, but in none of the cases treated with liver extract could the liver be regarded as completely restored when the patients were discharged. It must be mentioned that liver extract is superior to vitamins, as 5 of the 7 infants survived, while in the case of the vitamins all 7 died.

Dried Stomach.—The most dramatic results were obtained with dried stomach. Clinically moribund patients rapidly lost their edema fluid, the skin and oral lesions healed, the diarrhea stopped and the patient recovered within one week. Dried stomach was the only substance so far used by us when the clinical improvement was a reflection of the rapid healing of the liver.

This is well illustrated by the following series of liver biopsies taken from an infant moribund on admission. The first biopsy revealed the liver to be grossly fatty and similar in all respects to the seriously injured livers of the first category (fig. 6). Within ten days there was a sharp reduction in the amount of fat, which at this stage was distributed chiefly in the form of fine particles, with transitions to rather coarse globules exceeding the size of the nucleus (fig. 7). The fat droplets, especially the large variety, stained intensely, as in the livers of the second category, but many cells contained fat stained salmon pink or yellow, as described for the third category. Large vacuolated cells are absent, the sinusoids are patchily dilated and

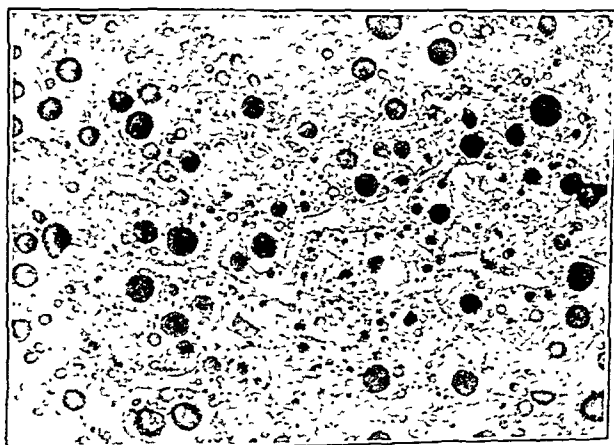


Fig. 7.—Liver of same patient as in figure 6 five days after the cessation of a five day course of dried stomach. Note the improvement as compared with figure 6, but large fat globules are still present in many liver cells.

there is a moderate accumulation of round cells in the portal tract. Dried stomach is the only substance thus far used with which we have been able to convert a liver of the first category into a type intermediate between the second and third within the short period of eleven days. Moreover although dried stomach was

administered for only five days, at the end of twenty-one days the fat had become reduced still further and only an occasional cell contained fine droplets of deeply stained fat (fig. 8). The cytoplasm was very watery, while the nuclei of the cells related to the portal tract contain a single large clear vacuole; the sinusoids are

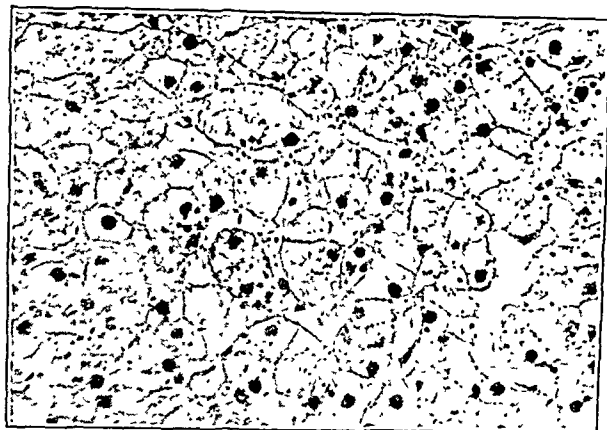


Fig. 8.—Liver of same patient as in figure 6 ten days after cessation of a five day course of dried stomach. Note almost complete disappearance of fat from the liver cell. Only a few fine fat droplets remain. Compare with figures 2 and 5.

for the main closed, although here and there they are dilated. The portal tracts still contain small numbers of round cells.

In those patients with a liver belonging to the second category on admission the fat is also rapidly depleted, but at the end of two weeks it is still present in the form of dark red globules distributed in a patchy fashion.

Dried stomach therapy was continued only for five days, but the livers continued to improve even after the treatment was stopped. Although the livers did not return completely to normal, the results so far obtained were infinitely superior to those following the use of liver extract. Our supply of dried stomach was limited, but we feel that an additional five days treatment might have completely removed all the fat from the liver.

Incomplete treatment with dried stomach may also be associated with mild residual damage which may predispose the patient to a relapse. However, the results obtained thus far indicate that dried stomach acts rapidly on the liver and patients invariably respond within forty-eight hours of treatment irrespective of the severity of the hepatic injury.

COMMENT

One of the striking features of infantile pellagra is the consistent presence of extensive fatty changes in the liver. As we shall show later, hepatic damage is also invariably present in adults suffering from pellagra. Such fatty livers in infantile and adult pellagra have been previously reported only at postmortem.¹⁸ By means of the liver biopsy technic we have been able to demonstrate that the liver may become extensively fatty several weeks before death. In no case of infantile pellagra has the liver been free of fat.

The fatty change in the liver has been so extensive, and the circulation through the liver so bad, that to us it seemed the infant was virtually hepatectomized. The

¹⁸ Denton,¹⁹ Trowell,²⁰ Sydenstricker and Thomas,²¹ Trowell.¹⁷

disturbances in blood protein, hemopoiesis and carbohydrate metabolism in pellagra can be easily attributed to the extensive liver damage. However, despite the extensive injury to the liver, jaundice was not observed in a single case under our observation.

The presence of large quantities of unsplit fat in the stools suggested a deficiency of bile in the alimentary tract. However, Shapiro and his associates,¹⁹ using labeled fat, have shown that even when bile is absent from the bowel the dietary fat is absorbed and, when a fat free diet is fed, large quantities of fat are excreted into the bowel. They concluded that the fatty stool in obstructive jaundice is not due to the interference with the absorption of dietary fat. That the bulky fatty stool so commonly encountered in infantile pellagra is probably due to excessive fat excretion receives support from the fact that the dietary fat in these cases is extremely low and could certainly not account for the large amount of fecal fat. Since the diet of these patients is almost pure carbohydrate, it is possible that the accumulation of large quantities of fat in the liver and in the stool is an expression of the conversion of carbohydrate into fat, together with an inability of the tissues to utilize this fat. At postmortem there is a remarkable contrast between the enormous accumulation of fat in the liver and the extreme depletion from the body depots as expressed by the severe emaciation.

During the last three years we have observed over 250 cases of infantile pellagra, of which 50 per cent ended fatally. In the treatment of this large series of cases vitamins were used orally and parenterally together with a diet balanced in respect of proteins, carbohydrates, fats and natural vitamins. Moreover, in some cases transfusions of blood or concentrated serum also were tried. A mortality rate of over 50 per cent in patients on this regimen cannot be regarded as satisfactory, nor does it indicate that the administration of vitamins and the correction of the diet on the basis of current knowledge can save the lives of patients suffering from severe infantile pellagra.

Trowell²⁰ has been so impressed by the resistance of this disease to nicotinic acid and other vitamins that he has recently suggested that the name infantile pellagra, which he originally introduced and which we still accept, be replaced by the term "malignant malnutrition."

Whereas we have shown that nicotinic acid removes the fat from the liver in adult pellagrins, albeit this depletion of liver fat is associated with massive deposition of pigment in most instances,²¹ in children this vitamin appears to intensify the lesion. Since Handler and Dann²² have shown that nicotinamide in large doses produces fatty infiltration in the liver of rats, and in view of our confirmation of this finding in human infants, we arrive at the opinion that nicotinic acid is a dangerous form of therapy in severe cases of infantile pellagra. Our experience with thiamine, riboflavin, pyridoxine and brewers' yeast alone, together or in combination with a wholesome diet and serum transfusion, points to the fact that not only are they not life

saving measures but they may even hasten the death of a patient with severe infantile pellagra.

Sydenstricker and his collaborators,²³ on the basis of their extensive experience, consider that, of all the substances used by them, liver extracts rich in the Cohn fraction are the most rapidly curative of all the manifestations of pellagra. Elvehjem²⁴ stated that, in his opinion, "most of the biological activity of liver can be ascribed to free nicotinic acid or its derivatives." Since we have found that while nicotinic acid intensifies the lesions in our cases, and liver extract rich in the Cohn fraction improved the clinical condition and partially depleted the fat from the liver, it follows that the beneficial effects of the liver extract could hardly be ascribed to the nicotinic acid component alone. Liver extract is apparently rich in numerous substances which are considered to be lipotropic.²⁵ On the other hand, McHenry and Gavin²⁶ reported that the administration of beef liver extract to rats on a fat free diet caused acutely fatty livers, provided thiamine, riboflavin, pyridoxine and pantothenic acid were also supplied. The complex nature of an extract of liver prevents us from attempting to ascribe its beneficial effects to any single known substance. The fact that the clinical condition improves very slowly when liver extract is administered and that even at the end of five weeks some fat is still present in the liver indicates that this form of therapy is still inadequate to effect a complete cure, even in combination with the full diet. Thus, while Sydenstricker and his associates have found that the intravenous injection of liver extract is the most efficient method for the treatment of pellagra in adults, our experience indicates that it is only partially effective in infants.

Prior to the introduction of nicotinic acid a variety of substances were used in an attempt to discover a specific cure for this widespread disease.²⁵ In view of the apparent similarity in the clinical manifestations of pellagra and pernicious anemia, Spies and his associates at first treated pellagrins with gastric juice from normal individuals,²⁶ and then when dried stomach became available through the efforts of Sturgis and Isaacs²⁷ and Sharp²⁸ he used this substance in massive doses (750-1,000 Gm. daily) with good results. Sydenstricker and his collaborators confirmed Spies's observations²⁹ and even went so far as to suggest that pellagra might be due to an intrinsic gastric deficiency unrelated to that described in pernicious anemia.³⁰ Despite these significant observations, Spies as well as Sydenstricker firmly believed that liver extract was the most valuable form of therapy for pellagra.³¹

19. Shapiro, A.; Koster, H.; Rittenberg, D., and Schoenheimer, R.: Origin of Fecal Fat in the Absence of Bile Studied with Deuterium as an Indicator, *Am. J. Physiol.* **117**: 525, 1936.

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25. Spies, T. D.: Observations on the Treatment of Pellagra, *J. Clin. Investigation* **13**: 807, 1934.

26. Spies, T. D.; Payne, W., and Chinn, A. B.: The Relationship of Pellagra to Pernicious Anemia, *Proc. Soc. Exper. Biol. & Med.* **32**: 328, 1934.

27. Spies, T. D., and Payne, W.: A Study of the Etiological Relationship Between Pellagra and Pernicious Anemia, *J. Clin. Investigation* **12**: 229, 1933.

28. Sturgis, C. C., and Isaacs, R.: Desiccated Stomach in the Treatment of Pernicious Anemia, *J. A. M. A.* **93**: 747 (Sept. 7) 1929.

29. Sharp, E. A.: An Antianemic Factor in Desiccated Stomach, *J. A. M. A.* **93**: 749 (Sept. 7) 1929.

30. Sydenstricker, V. P.; Armstrong, E. S.; Derrick, C. J., and Kemp, P. S.: On the Existence of an Intrinsic Deficiency in Pellagra: Preliminary Report, *Am. J. M. Sc.* **192**: 1, 1936.

31. Sydenstricker, Armstrong, Derrick and Kemp: Sydenstricker and Thomas.

32. Spies, T. D.: The Treatment of Pellagra by Means of Parenteral Liver Extract, *Proc. Soc. Exper. Biol. & Med.* **31**: 363, 1933; Observations on the Treatment of Pellagra: Sydenstricker, Schmidt, Geeslin and Weaver: Sydenstricker and Thomas.

With the introduction of nicotinic acid these observations became obscured and no great importance was attached to the casual remarks by Spies and Sydenstricker that relapses were rarer after dried stomach than after liver extract and nicotinic acid.

Apparently unaware of the work of Spies and Sydenstricker, Petri³² demonstrated the value of an extract of hog's stomach in the treatment of endogenous or secondary pellagra. Later Bandier³³ reported excellent results in primary pellagra with doses of dried stomach infinitely smaller than those used by Spies.³⁴

From the literature available it would appear that since that time no further reports have been published concerning the value of dried stomach in the treatment of pellagra.

In most countries clinical and experimental medicine today base their practices almost entirely on the doctrine of causality in its simplest form. In the field of nutrition, disease is said to be caused by the presence or absence of specific substances the addition or subtraction of which is believed to cure that disease. In the earliest phases of acute deficiency diseases this approach may have the desired effect. Thus, feeding a wholesome diet may cure a pellagrin, but clinical experience has shown that despite the application of all known forms of therapy 6 per cent of adult pellagrins still die, and among infants the mortality rate may be as high as 90 per cent.

While dietary imbalance may initiate the disease, secondary changes are produced in the body which not only alter the original character of pellagra but may even determine its subsequent course. Once these secondary changes occur, the treatment of pellagra by the routine procedure proves futile. The new character of the disease now demands an analysis of the secondary pathologic process. In these circumstances the treatment will be determined by the nature of these secondary processes.

Having established that in infantile pellagra the liver is invariably injured to a greater or lesser extent, it seemed logical to assist the recovery of the damaged liver by supplying liver extract. While it was possible to effect a clinical cure together with a significant improvement in the liver, the patients left the hospital with residual liver damage.

From this we concluded that liver extract was incapable of completely curing the disease. Moreover, we appreciated for the first time why relapses occurred so frequently in adult pellagrins who on clinical grounds were pronounced as cured after liver therapy.

For this reason we directed our attention to other organs, such as the stomach and the nervous system, which are known to be implicated in this disease and which may initiate and maintain the pathologic processes in the liver.

It is not our object in this study to consider the possibilities of effecting a cure of pellagra through the nervous system, although Speransky has already suggested that this may well be achieved.³⁵

Petri's description of gastropival pellagra in man and in gastrectomized swine³⁶ became significant especially since gastric dysfunction is such a constant finding in pellagrins.³⁷ Moreover, endogenous pellagra originating primarily from gastric damage failed to respond to nicotinic acid but improved rapidly with stomach extracts.³⁶ It seemed, therefore, that pellagra of dietary origin was an expression of disorder of the gastrohepatic complex, and therefore the administration of dried stomach appeared to be a possible way of curing the refractory forms of pellagra in adults as well as in children.¹ The rapid improvement of the clinical condition, the resolution of the edema and the remarkable improvement in the structure of the liver (figs. 6, 7 and 8) leave no doubt in our minds that dried stomach is the most valuable single therapeutic agent available at present for saving the lives of children suffering from severe malnutrition.

In view of the rapid depletion of the large deposits of fat in the livers of infantile pellagrins, stomach extract must be regarded as a vigorous lipotrope. Since we have administered only 10 Gm. of dried stomach daily it is unlikely that this lipotropic action could be ascribed to its choline content. It is possible that the beneficial effects obtained with large doses of liver extract may be ascribed to a factor similar or complementary to that contained in stomach extracts.

One other aspect of the action of this gastric extract requires comment. An outstanding feature of cases of infantile pellagra is a severe and extensive edema. Liver extract produces a slow resolution of this edema. However, after the administration of dried stomach there is a rapid diuresis. Within twenty-four to forty-eight hours the infant may lose anything from 8 to 20 ounces in weight as the result of the rapid depletion of edema fluid. After four to seven days on dried stomach the edema is completely resolved. Dried stomach, therefore, is not only a potent lipotrope, but in these patients it also has a vigorous diuretic action.

From the foregoing it is evident that the liver of infants is severely damaged, even within six to eight months of birth, by dietary imbalance. Owing to the poor economic status of the African, a history of repeated attacks of acute malnutrition is invariably elicited from adult pellagrins. Each attack damages the liver. Cirrhosis has been encountered even in children under the age of 10, and in adults, by repeated liver biopsies, we have observed the development of pigment cirrhosis within six months of an attack of pellagra.

We consider the high incidence of cirrhosis and primary carcinoma of the liver in adolescent and young adult Africans as being due in no small measure to repeated insults to the liver resulting from acute and chronic malnutrition.

SUMMARY AND CONCLUSIONS

1. By means of liver biopsies we have established that, on admission to the hospital the livers of infantile pellagrins show various degrees of fatty change; in

32. Petri, S.; Wansch, O.; Stubbe Teghjaerg, Else, and Stubbe Teghjaerg, H. T.: Treatment of Pellagra with Stomach Preparations: Its Gastrogenic Etiology and Relationship to Polyneuritis, *Acta med. Scandinav.* 93: 450, 1937.

33. Bandier, E.: On the Treatment of Exogenous Pellagra with Stomach Preparation, and Considerations on the Possible Identity of the Vitamin B₆ Complex with the "Glande Intestine Enzyme Complex," *Acta med. Scandinav.* 101: 496, 1932.

34. Spies, T. D.: The Treatment of Pellagra, *J. A. M. A.* 104: 1377 (April 20) 1935; Observations on the Treatment of Pellagra.

35. Speransky, A. D.: A Basis for the Theory of Medicine, Moscow, Intra Cooperative Publishing Society, 1935, p. 396. Gillman, J., and Gillman, T.: A Review of Speransky's Theory of the Role of the Nervous System in Disease, *Ann. Rev. Soviet Med.*, to be published.

36. Petri, S.; Nørgaard, F., and Bing, J.: Pathological Changes Produced by Gastrectomy in Young Swine, *Am. J. M. Sc.* 195: 717, 1938.

37. Mulholland, H. B., and King, R. L.: Pellagra: Review of Cases with Special Reference to Gastric Secretions, *J. A. M. A.* 101: 576 (Aug. 19) 1933. Flinker, R.: The Function of the Stomach in Pellagra, *Arch. f. Verdauungskr.* 57: 282, 1935. Rubio, D. M.: Studies on Pellagra: I. The Gastric Secretion, *Trop. Dis. Bull.* 40: 79, 1943. Gillman, T.: A Critical Evaluation of the Neural Red Excretion and Acid Secretion Tests of Gastric Function in the Normal and in Subjects with Gastric Disorders, *Gastroenterology* 3: 189 (Sept.) 1944. Edlitz, W. H., and Dalldorf, G.: *The Avitaminoses*, ed. 2, Baltimore, Williams & Wilkins Company, 1941.

severe cases almost every liver cell is distended by a single large globule of fat. Liver biopsy is indispensable in establishing the prognosis and in assessing the effectiveness of any form of therapy.

2. The reactions of the liver to vitamins, liver extract and dried stomach have been studied in a selected series of 20 infantile pellagrins with comparable hepatic lesions on admission.

3. In severe cases the administration of vitamins intensified the accumulation of fat in the liver cells. Every one of the 7 cases treated with vitamins terminated fatally.

4. Although liver extract rich in the Cohn fraction is superior to vitamins, the fat is depleted from the liver slowly despite the clinical recovery. Only 2 of the 7 cases in this group ended fatally.

5. Dried stomach in 10 Gm. doses daily in combination with hydrochloric acid leads to spectacular recovery of the patient and loss of edema fluid. Moreover, the fat in the liver disappears rapidly and almost completely in every instance. All the patients treated with dried stomach recovered.

6. Although the fat content of the diet is low, there is a massive accumulation of fat in the liver, and it is excreted in large amounts in the feces despite the emaciation of the rest of the body. It is suggested that, in infantile pellagra, carbohydrate is converted into fat which cannot be utilized.

7. We conclude that the administration of vitamins in severe nutritional edema associated with pellagrous lesions in infants can be extremely dangerous and is contraindicated.

8. On the basis of the results obtained in our carefully selected cases, dried stomach is the most valuable therapeutic agent available for the treatment of severe infantile pellagra. Since dried stomach causes the rapid depletion of fat from the liver, it must be regarded as a vigorous lipotrope.

9. In children discharged as clinically cured, liver biopsy has revealed the existence of residual liver damage, the extent of which is determined by the severity of the initial lesion and the nature of the therapy.

10. Recurrent attacks of subclinical and overt malnutrition result in progressive hepatic damage. These repeated insults are in no small measure responsible for cirrhosis and probably for primary carcinoma of the liver so frequently encountered in young Negroes in South Africa.

Regulation of Body Temperature.—Heat loss can occur through conduction, radiation, convection and vaporization. The amount of heat lost through these four channels depends chiefly on the surface area of the body and the difference between its temperature and that of the surroundings. The temperature of the skin depends on the rate at which blood passes through the cutaneous vessels. Thus vasomotor changes in the skin capillaries are most effective in controlling heat loss by radiation and convection. Heat loss by vaporization of water occurs in the lungs and from the surface of the skin. Any increase in respiratory ventilation augments the heat loss by vaporization from the lungs, while nervous control of perspiration limits the heat loss by evaporation of water from the skin. Thus, the control of heat loss is effected by the interplay of a number of physiologic processes—circulatory, respiratory and nervous in character.—Shock, Nathan W., from *Mental Disorders in Later Life*, edited by Oscar J. Kaplan, Stanford University Press, 1945.

THE EFFECTS OF CONCENTRATED HYPERIMMUNE RABBIT SERUM IN LOUSE BORNE TYPHUS

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The treatment of classic louse borne typhus with immune serum of various types has been described in many reports. Most of the attempts indicated that human convalescent serum had no noticeable effect on the course of typhus. The serums obtained from animals after they had recovered from experimental typhus have also been given a clinical trial, but the reports of the therapeutic value of such serums have been somewhat conflicting. The early literature has been reviewed by Otto and Munter.¹

More recently the development of satisfactory technics for the cultivation of rickettsias in large quantities has facilitated the hyperimmunization of animals. Zinsser, Castaneda and Hager² prepared a serum by inoculation of horses with rich suspensions of murine rickettsias obtained from x-rayed rats. Durand and Balozet, by inoculations with rickettsias from infected lungs of rodents, obtained a hyperimmune horse serum against epidemic louse borne typhus,³ which was reported on favorably in recent therapeutic trials.⁴ Wolman,⁵ after treating 220 patients in Ethiopia with antityphus horse serum, reported that the treated patients had a lower mortality and a shorter illness than the untreated patients. Kurotchkin, van der Scheer and Wyckoff⁶ used infected yolk sacs of developing chick embryos⁷

From the Cairo unit of the United States of America Typhus Commission.

Numerous chemical determinations for the cases in this study were performed by the 38th General Hospital Laboratory staff.

Technical assistance was given by Sergeant Stephens and Corporal Stearman in the laboratory work performed on the serum-treated patients.

The authors received generous cooperation from the officials of the Egyptian Ministry of Public Health, who facilitated the studies of the United States of America Typhus Commission in Egypt.

Serologic tests and strain isolations were performed by Col. Harry Plotz and Capt. Byron Bennett, with the assistance of Sergeant Guin and of Dr. Tabet of the Egyptian Serum and Vaccine Institute.

The director of the Cairo Fever Hospital, Dr. M. A. B. Demerdash Bey, made possible the establishment of the United States of America Typhus Commission ward and laboratory in his institution and gave helpful advice and cooperation.

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writers and are not to be considered as reflecting the policies of the Navy Department.

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to hyperimmunize rabbits. They refined and concentrated the immune serum by a process similar to that used in the production of antipneumococcus serum. Topping⁸ reported that serum prepared in this manner against spotted fever showed definite therapeutic value if treatment was instituted in the first few days of illness. In laboratory studies the refined and concentrated antityphus rabbit serum has shown a striking effect in experimental typhus. The febrile response of guinea pigs,⁹ the death of white mice from several lethal doses of rickettsial toxic substances¹⁰ and the fatal infection of cotton rats¹¹ can be prevented by the hyperimmune serum in high titer. In this regard Felix¹² cited evidence from which he concluded that "the efficacy of a therapeutic antityphus serum depends on the presence in it of effective amounts of the two different antibodies corresponding to the heat labile and heat stable rickettsial antigens." Although the rabbit serum does not contain appreciable amounts of antibodies which agglutinate proteus OX 19, the high concentration of neutralizing and complement fixing antibodies¹³ in this rabbit serum, its striking properties against experimental typhus and the favorable effects of a similar serum against another rickettsial disease of man were considerations which prompted the clinical trial of hyperimmune rabbit serum in typhus. The distinctly beneficial effect observed in patients treated with serum early in the course of louse borne typhus is the subject of this report.¹⁴

In February 1943 the United States of America Typhus Commission, in cooperation with the officials of the Egyptian Ministry of Public Health, established an experimental ward in the Cairo Fever Hospital.¹⁵ The study of the therapeutic effect of hyperimmune rabbit serum was begun near the peak of the epidemic, in April 1943. Twenty-five cases of typhus were treated with varying amounts of serum.¹⁶ For reasons which are not pertinent to this discussion the usual method for therapeutic trials, the alternation of control and treated cases, was not followed. Instead, the 25 treated cases were admitted in consecutive order to the Commission ward. The background of experience during two epidemic years in the Cairo Fever Hospital is drawn on to provide a control group for comparison with the serum treated group. All of the cases discussed in this paper were considered to be certain cases of typhus on the basis of clinical and laboratory evidence. The numerous strains which have been isolated

from the cases in the Commission ward have uniformly shown the characteristics of epidemic louse borne typhus.¹⁷

SELECTION OF CASES

The 25 patients who were selected for serum treatment were unvaccinated Egyptian men in the age group 18 to 48 years who had no obvious complicating conditions at the time of admission, whose date of onset of illness was clear and who were not later in their disease than the seventh twenty-four hours.

Of the 159 patients who were studied in the Commission ward in 1943 and 1944 there were 44 patients who conform to the criteria cited. This group received no special therapy other than nursing care, fluids and appropriate measures to combat complications which arose during hospitalization. For the purpose of comparison with the cases treated with serum, the 44 are designated as the "untreated" control group. Their clinical course was representative of the entire experience of the Commission ward.

The high mortality of the typhus cases in the general wards of the Fever Hospital during the period covered by our observations on serum treatment provides evidence that the typhus epidemic was severe. In May and June 1943 a total of 1,719 Egyptian men aged 18 to 48 were admitted to the general wards of the Fever Hospital suffering from typhus, and of these 393 died, a mortality of 23 per cent. This figure is approximately the same as that for the two entire epidemic seasons, and it indicates that there was no appreciable change in the severity of the epidemic in May and June 1943 which might confuse the observations of the effects of a therapeutic agent.

ESTIMATION OF SEVERITY OF ILLNESS

To facilitate the analysis of cases an arbitrary classification of clinical severity was decided on. After discharge from the hospital each patient was classified on the basis of his clinical course. The principal factors which influenced the estimation of severity were the intensity of subjective symptoms (headache, generalized bodily aches and pains, tinnitus, deafness); the degree of prostration; the extent of central nervous system involvement (mental dulness, stupor, coma, incontinence of urine and feces, abnormal neurologic signs); the severity of cardiovascular system involvement (hypotension, tachycardia, peripheral vascular failure, myocardial damage); and, finally, the occurrence of urinary retention, oliguria, nitrogen retention, bronchopneumonia, otitis media, parotitis, furunculosis and gangrene. With these factors in mind the following classification was made:

A. Cases so mild that a definite diagnosis of typhus on clinical evidence alone was not possible, the final diagnosis being made only with the aid of positive laboratory data.

B. Cases with minimal symptoms and signs, yet definitely diagnosed as typhus on clinical evidence.

C. Cases of moderate severity, showing slight prostration, central nervous system involvement, cardiovascular changes or mild complications.

D. Severe typhus cases, with definite prostration, central nervous system involvement, cardiovascular changes or serious complications.

8. Topping, N. H. Rocky Mountain Spotted Fever: Further Experience in the Therapeutic Use of Immune Rabbit Serum, *Pub Health Rep* 58: 757, 1943.

9. Wyckoff, R. W. G., and Bohnel, E.: Therapeutic Effect in Guinea Pigs of Hyperimmune Epidemic Typhus Antiserum, *Proc. Soc. Exper. Biol. & Med.* 49: 712, 1942.

10. Veldce, M. V.: Letter dated April 19, 1943 to the Director of the United States of America Typhus Commission, from the Division of Biologics Control of the National Institute of Health, U. S. Public Health Service.

11. Snyder, J. C.: Unpublished observations.

12. Felix, A.: The Typhus Group of Fevers Classification, Laboratory, Diagnosis, Prophylactic Inoculation and Specific Serum Treatment, *Brit. M. J.* 2: 597, 1942.

13. Zafaronetti, C. J.: Personal communication to the authors.

14. A recent paper has been published by R. S. Stevens (Louse-Borne Typhus Fever: Trial of Serum Treatment, *Lancet* 1: 106-109 [Jan 27] 1945) concerning the treatment of 7 unvaccinated patients with typhus among British army personnel by hyperimmune antityphus rabbit serum. The serum administered to these patients and supplied by Brig General L. A. Fox, Field Director, United States of America Typhus Commission, was the same as that used in our studies. The author's conclusions as to the effect produced by the early administration of this serum in louse borne typhus are in general agreement with our findings.

15. Bayne Jones, S.: The United States of American Typhus Commission, *Army M. Bull.*, July 1943, number 68, pp. 4-15.

16. The serum used in this study was prepared by the Lederle Laboratories, Inc.

17. Letter of Dr. N. H. Topping to the Director of the United States of America Typhus Commission, dated Nov. 6, 1943. Plotz, H.; Westman, K., and Bennett, B. L.: The Serological Pattern in Epidemic Typhus Fever: 1. The Development of Complement Fixing Antibodies from the Division of Virus and Rickettsial Diseases, Army Medical School, Army Medical Center, Washington, D. C., December 1943, to be published. Unpublished observations of the authors.

E. Cases of such severe illness that a fatal outcome was expected at some point in the clinical course.

F. Fatal cases.

PLAN OF TREATMENT

Each patient was tested for sensitivity by the introduction of 0.1 cc. of undiluted rabbit serum into the skin of the forearm. After an interval of twenty minutes the test was observed, and, if negative, serum therapy was begun. Serum was given intramuscularly or intravenously or by a combination of the two routes. The different methods and varying dosages used in the treatment of the first cases reflect the difficulties encountered in our attempts to decide what amount of serum should be given and over what period of time therapy should be maintained. A plan of treat-

As soon as it was observed that such a rate of injection produced no serious effects, it was increased, and maximum being 4 cc. per minute. However, in each case in which serum was administered intravenously for the first time the initial rate did not exceed 0.5 cc. per minute for the first 5 cc. injected.

Chills of varying intensity occurred during seven injections. At the onset of each chill the rate of injection was reduced. It was not found necessary to discontinue any injection because of this reaction. In 1 case severe chills occurred on two occasions from one to three hours after administration of serum. It is our opinion that these reactions were most probably due to imperfectly prepared glassware and were not dependent on any substance in the serum itself.

TABLE 1.—Data Obtained from 25 Cases of Epidemic Louse Borne Typhus Fever* Treated with Concentrated Hyperimmune Antityphus Rabbit Serum

No.	Age, Yrs.	Body Weight, Lbs.	Duration of Illness When Treatment Begun, Days	Duration of Treatment, Days	Total Amount Serum Given			Duration of Fever, Days	Maximum Non-protein Nitrogen, Mg. per 100 Cc.	Strain Isolation †	Maximum Titer ‡		Serum Sickness	Complications	Clinical Classification of Severity
					Intra-muscularly, Cc.	Intra-venously, Cc.	By the Two Routes Combined, Cc.				Well-Felix OX 19	Complement Fixation Epidemic			
1	30	114	2	3	100	0	100	7	23	....	80	24	0	None	B
2	26	125	2	5	220	0	220	14	35	....	640	48	Yes	None	C
3	20	99	2	4	0	405	405	8	31	....	640	48	?	None	B
4	20	100	2	3	90	60	150	7	..	Pos.	80	96	Yes	None	A
5	23	129	2	3	131	66	197	8	38	Pos.	5,120	96	Yes	None	B
6	23	123	3	6	200	39	239	10	70	....	1,280	96	0	Nitrogen retention §	B
7	19	117	3	1	60	56	116	17	38	Pos.	640	48	0	Furunculosis, abscess of thigh	D
8	24	134	3	3	133	67	200	11	41	Pos.	2,560	48	Yes	None	C
9	30	112	3	3	122	46	168	12	38	Pos.	1,280	24	0	None	E
10	45	99	3	3	100	50	150	13	25	Pos.	2,560	12	0	None	B
11	19	121	4	1	0	58	58	11	36	Pos.	2,560	192	0	None	C
12	19	109	4	2	30	39	69	17	35	....	40	24	0	None	C
13	20	109	4	1	0	51	51	10	32	....	640	48	0	None	C
14	20	111	4	5	198	20	218	14	33	Pos.	5,120	96	?	Bronchopneumonia	D
15	20	119	4	5	0	512	512	11	37	Pos.	1,280	96	0	None	D
16	30	122	4	5	175	316	491	20	27	Pos.	640	48	0	Bronchopneumonia, neuritis, otitis	D
17	40	121	4	3	120	60	180	18	136	Pos.	640	48	Yes	Nitrogen retention	D
18	34	123	5	3	80	0	80	17	126	....	640	192	0	Nitrogen retention	E
19	25	110	5	3	120	0	120	22	138	Pos.	160	192	0	Nitrogen retention, cystitis, otitis media, gangrene	E
20	25	152	5	1	0	78	78	16	75	Pos.	5,120	384	0	Nitrogen retention, bronchopneumonia	E
21	31	120	5	5	180	40	220	12	31	Pos.	2,560	384	0	None	C
22	20	117	5	6	240	20	260	12	36	Pos.	5,120	96	Yes	None	C
23	26	112	6	3	80	0	80	14	..	....	1,280	0	0	None	B
24	23	126	6	1	0	59	59	13	107	Pos.	640	192	Yes	Nitrogen retention	D
25	21	124	6	6	218	20	238	12	31	Pos.	10,240	96	0	None	C

* Unvaccinated Egyptian men in the age group 15 to 45 who were admitted to the Commission ward in the first week of illness.

† The isolation of strains and the serologic tests were performed by Colonel Plotz and Captain Bennett.

‡ Rectal temperatures were taken at four hourly intervals on all of the patients in this study. A temperature above 37.5 C. (99.5 F.) is considered evidence of fever.

§ Values of the blood nonprotein nitrogen above 45 mg. per hundred cubic centimeters are regarded as evidence of nitrogen retention.

ment gradually evolved which seemed to be satisfactory. It was as follows: The initial dose was 1 cc. of serum for each pound of body weight, half administered intravenously and half intramuscularly. The second and third doses were each 0.25 cc. per pound of body weight and were administered intramuscularly twenty-four and forty-eight hours after the initial dose. It was thought that this plan of treatment would maintain a relatively high concentration of the rabbit serum in the patient's blood stream for several days.

OBSERVATIONS DURING THE ADMINISTRATION OF SERUM

When serum was given intravenously, the blood pressure, pulse and respirations were recorded at short intervals. Subjective and objective effects of the introduction of serum were noted.

Intravenous injections of serum were made at varying rates. At the outset the rate was 0.5 cc. per minute.

Vomiting occurred during one injection. This was coincidental with a fall of 24 mm. in systolic and of 20 mm. in diastolic blood pressure. Nausea occurred in 2 cases; in 1 of these there was a coincidental drop in blood pressure from 96/50 to 80/40.

A fall in blood pressure, not exceeding 25 mm. in systolic and 20 mm. in diastolic, occurred in 3 cases.

The onset of headache or the increase of headache was observed during eleven injections. This headache was frontal in type. On occasions it appeared to be related to the speed of injection.

Suffusion of the conjunctivas was seen during four injections. It was accompanied by headache, or increase in headache, and disappeared promptly when the injection was finished.

Extrasystoles were observed during two injections. In 1 of these cases the irregularity had been noted before the administration of serum was begun. Extrasystoles were noted only during injection in the other case.

Urticaria was noted in 1 case. The skin test was negative. After the injection of approximately 40 cc. of serum in twenty-two minutes several large round urticarial wheals with red bases but no pseudopods appeared on the trunk and limbs. The injection was completed (10 cc. more) and no further reactions occurred.

The skin test in 1 case was thought to give a questionably positive reaction. There was swelling of the wheal with a red base, and one pseudopod. This type of reaction was not considered a contraindication to therapy, and subsequent injection was not accompanied by any further reaction.

Intramuscular injections of serum were given into the buttocks. The greatest amount given by this method was 115 cc. in twenty-four hours. Aside from temporary swelling and tenderness in this particular case, no unfavorable reactions to intramuscular injections were noted.

DOSAGE

The total amount of serum given to each patient varied from 51 to 512 cc. The average dose for the 25 patients was 186 cc. The duration of serum therapy and the total amounts given by intravenous and intramuscular routes appear in table 1.

TABLE 2.—*The Individual Ages, Duration of Fever and Clinical Severity of 44 "Untreated" Control Cases Arranged According to the Day of Illness at the Time of Admission to the Commission Ward**

Day of Disease †	Number, Age and Days of Fever of the Patients in Each Clinical Classification of Severity					
	A	B	C	D	E	F ‡
First	39. 21-25		
Second						
Third	40. 28-15 41. 20-19 42. 21-16		
Fourth	27. 26-12 28. 22-10	43. 32-13 44. 25-27	.....	62. 30
Fifth	29. 20-17 30. 20-16	45. 22-14 46. 22-27	57. 18-18 58. 35-27 59. 35-16	63. 35 64. 36 65. 30 66. 46 67. 26
Sixth			31. 32-18	47. 23-15 48. 23-16 49. 18-21 50. 25-19 51. 30-18	60. 25-18 61. 19-35	68. 43
Seventh		26. 27-18	32. 25-17 33. 25-15 34. 20-16 35. 47-14 36. 21-14 37. 21-16 38. 24-16	52. 27-14 53. 21-35 54. 29-14 55. 22-17 56. 22-19	.....	69. 21

* Unvaccinated Egyptian men in the age group 18-48 who were admitted to the Commission ward in the first week of illness.

† "Day of Disease." For the 44 control cases this refers to the day of illness at the time of admission to the Commission ward. For the 25 serum treated cases, it refers to the day of illness at the time serum treatment was first begun; two patients (18 and 20) were admitted to the Commission ward one day before serum treatment was started. All of the other patients received treatment on the day of admission.

‡ The duration of fever of fatal cases is not included in the table.

RESULTS OF SERUM TREATMENT

The data obtained from the entire group of serum treated cases are presented in table 1, in which the patients were arranged according to the duration of illness at the time treatment was first started.

Table 2 presents data on the individual ages, duration of fever and clinical severity of the "untreated" control

cases. The various aspects of these tables will now be discussed.

Effect on Clinical Severity.—The clinical severity of the 25 cases treated with serum is compared with the 44 "untreated" control group in table 3. There was only 1 mild (A or B) case in the "untreated" group,

TABLE 3.—*Comparison of the Clinical Severity of 44 "Untreated" Patients* and 25 Patients* Treated with Concentrated Hyperimmune Rabbit Serum*

	Number and Percentage of Patients in Each Classification					
	A	B	C	D	E	F
44 "untreated" cases.....	0 0	1 2%	12 27%	18 41%	5 11%	8 18%
25 serum treated cases.....	1 4%	7 28%	8 32%	6 24%	3 12%	0 0

* Unvaccinated Egyptian men in the age group 18 to 48 admitted to the Commission ward in the first week of illness.

TABLE 4.—*Comparison of the Average Duration of Fever and Clinical Severity of 44 "Untreated" Cases* and 25 Cases* Treated with Concentrated Hyperimmune Rabbit Serum*

Classification of Severity	Average Duration of Fever	
	44 "Untreated" Cases, Days	25 Serum Treated Cases, Days
A.....	..	7
B.....	18	10½
C.....	15	12½
D.....	19½	15½
E.....	23½	19
F.....	(13)	..
Average of all cases except F.....	18½	13

* Unvaccinated Egyptian men in the age group 18 to 48 admitted to the Commission ward in the first week of illness.

whereas the serum treated group contained 1 A case and 7 B cases. There were no deaths among the serum treated group; 8 control patients died. The relative percentages of C, D and E cases were approximately the same in the two groups.

Effect on the Average Duration of Fever.—The average duration of fever for treated and control groups is shown in table 4. The treated patients had an average febrile period of thirteen days, as contrasted with eighteen and one-half days for the "untreated" control patients.

Relation of Duration of Illness at the Time Serum Was Started to the Clinical Course of the Patients.—The importance of early treatment can be seen in table 5, which shows the clinical severity of the 25 serum treated cases arranged according to the duration of illness at the time therapy was first started. Ten cases were treated in the second and third days of illness; 1 was an A case, 6 were B cases, 2 were C cases and 1 was a D case. These results are in sharp contrast to the 15 cases whose therapy was begun after the third day of illness; of these 1 was a B case, 6 were C cases, 5 were D cases and 3 were E cases. In the latter group the principal difference from the "untreated" control group was that there were no fatal cases. Otherwise the distribution of clinical severity was almost identical.

The Effect of Serum Treatment in Relation to the Age of the Patient.—The average age of the serum treated patients in each clinical classification is com-

pared with the corresponding figures for the "untreated" control group in table 7. There was no appreciable difference in average ages which might account for the high incidence of mild cases in the serum treated group.

Effect on the Rash.—Among the 5 patients who received serum in the second day of illness there were 2 who did not develop a rash and a third who had very questionable macules for one day only. All the other serum treated cases developed a characteristic typhus rash.

Effect on Kidney Function.—The blood nonprotein nitrogen was determined in 23 of the serum treated cases. Values above 45 mg. per hundred cubic centimeters were observed in 6 cases, or 26 per cent (table 1). In the "untreated" control group values above 45 mg. per hundred cubic centimeters occurred in 44 per cent of the patients from whom data were available.

Occurrence of Serum Sickness.—Seven patients in the group developed mild serum sickness. Two other patients had transient discomfort which was probably a manifestation of very mild serum sickness.

Isolation of Strains.—In most of the cases the attempt was made to isolate rickettsias from the blood of the patients before serum was administered. Positive febrile responses in guinea pigs were reported from 18 patients (table 1). On several occasions, positive results were obtained from the inoculation of blood which was drawn after varying amounts of serum had been given. In 1 instance, patient 4, the isolation of a strain helped to establish the diagnosis, since the clinical picture was too mild for a definite diagnosis of typhus.

TABLE 5.—Comparison of the Clinical Severity of 25 Serum Treated Cases* with the Duration of Illness at the Time Serum Treatment was Started

Day of Disease When Treatment Started	Number of Patients in Each Classification					
	A	B	C	D	E	F
Second.....	1	3	1	..	..	..
Third.....	..	3	1	1	..	..
Fourth.....	3	4	..	..
Fifth.....	2	..	3	..
Sixth.....	..	1	1	1	..	..

* Unvaccinated Egyptian men in the age group 18 to 48 admitted to the Commission ward in the first week of illness.

TABLE 6.—Comparison of the Clinical Severity of 25 Serum Treated Cases,* with the Average Amount of Serum Administered

Average Number of Cubic Centimeters of Serum Given to the Patients in Each Classification					
A	B	C	D	E	F
150	191	165	263	93	..

* Unvaccinated Egyptian men in the age group 18 to 48 admitted to the Commission ward in the first week of illness.

Relation of the Total Amount of Serum to the Clinical Course.—The average amount of serum which was administered to the patients in each clinical classification appears in table 6. The 3 cases classified as E were among the first 5 in the treated series. An average of 93 cc. of serum was administered whereas in the other groups the amount was from 150 to 263 cc. One of the 3 E cases was treated with a single intravenous dose of 78 cc. as a trial of that particular plan of therapy.

The other 2 E cases presented oliguria and nitrogen retention very early in the illness, and it was considered inadvisable to administer more serum. All of the serum available to us contained 0.4 per cent phenol as a preservative. Since phenol might result in further impairment of renal function, it was our opinion that more

TABLE 7.—Comparison of the Ages and Clinical Severity of 44 "Untreated" Patients* and 25 Serum Treated Patients*

Clinical Classification of Severity	Ages of the Patients in Each Classification					
	44 "Untreated" Patients			25 Serum Treated Patients		
	No. in Group	Individual Ages in Years	Average Age, Years	No. in Group	Individual Ages in Years	Average Age, Years
A	..	..	..	1	20	20
B	1	27	27	7	20, 23, 23, 26, 30, 30, 45	28
C	12	20, 20, 20, 21, 21, 22, 24, 25, 25, 26, 32, 47	25	8	19, 19, 20, 20, 21, 24, 26, 31	23
D	18	18, 20, 21, 21, 21, 22, 22, 22, 22, 23, 23, 25, 25, 27, 28, 29, 30, 32	24	6	19, 20, 20, 23, 30, 40	25
E	5	18, 19, 25, 35, 35	26	3	25, 25, 34	28
F	8	21, 26, 30, 30, 35, 36, 43, 46	33	0		

* Unvaccinated Egyptian men in the age group 18 to 48 admitted to the Commission ward in the first week of illness.

serum should not be given to these 2 patients whose renal function was in a precarious state. These considerations show why in the 3 E cases less serum was administered than in the other cases in the study group. The question arises, however, whether more serum might not have lessened the severity of these 3 cases. In the other groups there was no obvious correlation between total amount of serum and clinical severity. Treatment with massive doses continued for several days did not seem to yield better results than the usual plan as described.

Contraindications to Serum Therapy.—A possible contraindication has been mentioned in the preceding paragraph, that is, the administration of large quantities of serum containing phenol or other preservatives which may exert a harmful effect on kidney function when oliguria and nitrogen retention have already made their appearance. The gravity of impaired renal function in the prognosis of typhus is discussed in a separate Typhus Commission report.¹⁸ It is sufficient here to state that in our opinion phenol as a preservative should be avoided in the preparation of antityphus serum in view of the high incidence of impaired renal function in typhus.

COMMENT

The effect of hyperimmune antityphus rabbit serum in the treatment of typhus seemed to be very closely related to the duration of illness at the time treatment was first started. The results with 10 patients treated on the second and third day of the disease were almost uniformly good. When therapy was begun in the fourth, fifth and sixth days of illness it was more difficult to be certain that serum had influenced the course of the disease. To be sure there were no fatal cases, but a very much larger series of treated cases would be needed to prove that serum treatment did reduce mortality. If patients are first treated even later in

18. Yeomans, A.; Snyder, J. C.; Murray, E. S.; Ecker, R. S., and Zarafonitis, C. J.: Azotemia in Typhus Fever, to be published.

their disease than the sixth day, it is probable that the effect of serum would be impossible to evaluate except on a statistical basis.

What are the indications for the use of hyperimmune rabbit serum? The limited supply which is available at the present time precludes its use on a wide scale in an epidemic. Another therapeutic agent, para-aminobenzoic acid, has recently been reported to have a favorable influence on the course of typhus¹⁹ and from the data available it seemed that para-aminobenzoic acid had a somewhat more definite effect in the fourth, fifth and sixth day cases than did the rabbit serum. Since para-aminobenzoic acid is far less difficult to obtain than the hyperimmune rabbit serum, the question arises whether serum treatment should be considered at any time. Its most logical use would be the treatment of medical and sanitary personnel who have been infected with typhus. Such patients are likely to come under medical observation very early in their disease, at the optimum time for serum treatment. However, the widespread use of killed rickettsial vaccines for medical and sanitary personnel is now entirely feasible, and recent experience with Cox type vaccine clearly indicates that the persons who contract typhus after the recommended course of vaccine²⁰ have a mild form of the disease. Up to the present time no proved fatal cases have occurred after the recommended vaccination. On the other hand, the mortality from typhus rises rapidly as the age of the patients increases. It would be overoptimistic to anticipate that vaccine will protect all persons in the age groups above 40 from a serious or even fatal outcome. In the case of medical or sanitary personnel older than 40 every possible attempt should be made to reduce the severity of the disease. The use of hyperimmune rabbit serum, particularly if the course of vaccination has been incomplete or not given at all, is certainly warranted for older patients, for whom it might prove to be a life saving measure.

SUMMARY AND CONCLUSIONS

Twenty-five patients with louse borne typhus were treated with refined and concentrated hyperimmune antityphus rabbit serum. Their clinical course was contrasted with that of 44 "untreated" cases.

The 10 patients who received serum in the first seventy-two hours of illness had mild uncomplicated typhus of short duration.

The 15 patients who had been sick for four, five or six days before serum was administered did not show a striking difference in clinical severity from the "untreated" controls, except that there were no fatal cases.

It is concluded that hyperimmune antityphus rabbit serum has a favorable therapeutic effect on the course of typhus if treatment is started in the first three days of the disease. Although serum treatment seemed to have reduced the mortality in the group of patients who received serum in the fourth, fifth and sixth days of illness, the value of serum therapy for late cases cannot be determined definitely from the data of this study.

19. Yeoman, A.; Snyder, J. C.; Murra, E. S.; Zarafonitis, C. J., and Ecke, R. S.: *The Therapeutic Effect of Para-Aminobenzoic Acid in Louse Borne Typhus Fever*, J. A. M. A. 126: 349-356 (Oct. 7) 1944.

20. Ding, E.: *Ueber die Schutzwirkung verschiedener Fleckfieberimpfstoffe beim Menschen und ein Fleckfieberverlauf nach Schutzimpfung*, Ztschr. f. Hyg. u. Infektionskr. 124: 670, 1943. Gilliam, A. G.: Report to the Director of the United States of America Typhus Commission, subject "Study of Typhus Vaccine at the Cairo Fever Hospital," Aug. 14, 1943. Ecke, R. S.; Gilliam, A. G.; Zarafonitis, C. J.; Yeoman, A.; Murra, E. S., and Snyder, J. C.: "Paper in preparation. 'Vaccination Against Typhus Fever, Cholera and Plague,' circular letter No. 3, issued Jan. 14, 1942 by the Office of the Surgeon General, United States Army, Washington, D. C."

INTESTINAL PARASITE SURVEY OF REPATRIATES FROM THE FAR EAST

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There has been considerable speculation and perhaps unwarranted alarm concerning the probability of the importation of various parasites from the tropics into the United States during the postwar period, both by returning military personnel and by relocated civilian population groups. It would seem desirable, therefore, to survey representative groups of these individuals at convenient times and locations prior to their return to normal activities throughout the country in the post-war period.

Early in December 1943 the *Gripsholm* brought more than 1,000 Americans back to this country from the Far East. Among the passengers were several hundred missionaries with many years' residence in China, Japan, Korea and the Philippines. A considerable number of the passengers had been in Japanese occupied territory and in concentration camps for variable periods of time. Sanitary conditions were not always ideal, and opportunities for acquiring intestinal parasites were good.

It occurred to me that it might be profitable and interesting to carry out a survey on all the passengers when they arrived in New York City. Unfortunately, suitable arrangements for this could not be completed. However, by cooperation of several mission boards and many passengers who were canvassed by mail during their stay in New York, it was possible to obtain stool and blood specimens from 144 of the passengers.

PROCEDURE

Patients were requested to collect a casual stool specimen to be stored on ice and instructed to report for examination the following morning, immediately after having taken a saline cathartic (30 Gm. of sodium or magnesium sulfate). The precathartic specimens were stored in the ice box for subsequent study by the zinc sulfate centrifugal flotation method. Three post-cathartic specimens were collected and examined with saline solution and iodine as direct fecal films. In addition, these specimens were concentrated by zinc sulfate centrifugal flotation. Postcathartic specimens containing trophozoites of amebas were stained by Johnson's iron hematoxylin method for corroborative species identification.

Fresh fecal material was cultured on various selective mediums for pathogenic intestinal organisms. The parasitologic studies were conducted in the Tropical Diseases Diagnostic Laboratory of the New York City Health Department, and the bacteriology in the enteric laboratory.

RESULTS

Intestinal Parasites.—Seventy per cent of the passengers examined in this survey were found to harbor one or more intestinal parasites, protozoa or helminths, or both. The various parasites which were discovered, and their incidence are summarized in table 1.

From the Tropical Diseases Diagnostic Laboratories, New York City Health Department.
This study was begun and completed prior to the author's entrance into military service.
The author is assistant professor of preventive medicine and medicine, New York University College of Medicine, on leave of absence.

doubly ligated at the point of its origin from the aorta. When this was done the thrill and bruit ceased completely. On ligation of the artery the pulse rate dropped from 84 to 72, and the blood pressure rose from 136/60 to 156/100. The innominate artery distal to the fistula was then doubly ligated (fig. 4). It was not thought feasible to ligate the left innominate vein or the superior vena cava. Complete excision of the fistula would have required ligation and division of both innominate veins, the superior vena cava and the innominate artery, and because of the fear of cerebral edema this procedure was not carried out. The operation was discontinued at this time with the hope of eliminating the fistula, since there are no branches of the innominate artery which might communicate with it.

The portion of the sternum with the attached first rib was replaced and sutured with two wires of tantalum (fig. 5). The musculocutaneous flap was replaced with interrupted sutures of silk. At the end of operation the pulse rate was 68 and

tion of the heart on Feb. 15, 1945 showed a transverse diameter of 13.1 cm, a reduction of 2.1 cm. (fig. 3). The venous pressure in the cubital veins on that date was 154 mm. of water on the left and 234 mm. on the right. There is no

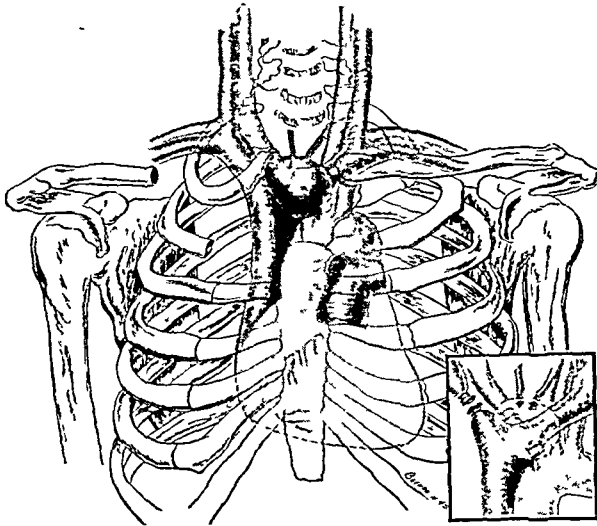


Fig 4—Arteriovenous fistula of the innominate vessels with false sac. Note resection of inner portion of clavicle and second rib, and retraction of the first rib with a portion of the sternum. Inset shows points of ligation and division of vessels.



nee of chest (retouched)

ration required seven hours. At the end of the operation as uneventful except for e pectoral muscles, which occasions. At no time s the temperature elevated rate was 100. Examina-

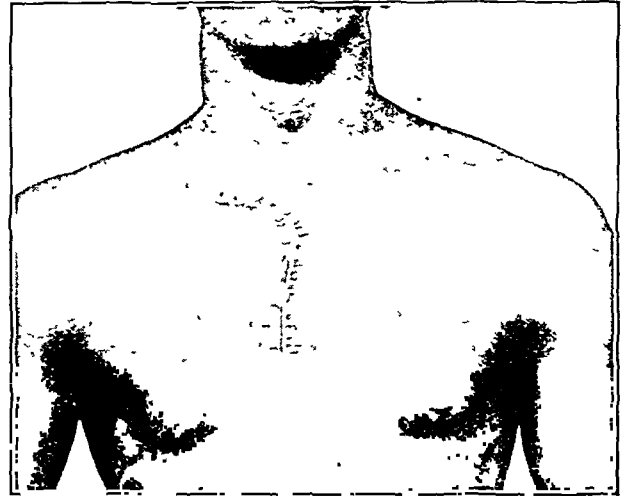


Fig 6—Patient six weeks after operation. Note line of incision and normal contour of chest.



Fig 7—Nutrition and movement of the shoulder.

dysfunction of the hand, arm or shoulder movements (figs. 6 and 7). Examination on May 17 failed to reveal any bruit or thrill, and it is believed that the condition is cured.

Rectal Anesthesia.—The production of anesthesia by the intestinal route was attempted shortly after sulfuric ether became more generally available as an inhalation anesthetic agent. Apparently, Nikolas Iwanowitch Pirogoff, the famous Russian surgeon, first described this method in 1847. Sutton said that Pirogoff's original plan was to introduce liquid ether into the rectum. Magendie warned him that this might be a dangerous procedure. Pirogoff then devised a method of vaporizing the ether by heating it and administering it in its volatile form—Keys, Thomas E.: The History of Surgical Anesthesia, New York, Schuman's, 1945.

4. Physicians must consider the possibility of parasitism in evaluating patients' complaints and should resort to stool cultures and examinations for parasites routinely among persons who have served overseas.

5. Zinc sulfate flotation of a casual stool specimen in conjunction with direct examination and zinc sulfate flotation of freshly passed postcathartic specimens is a practical and efficient method for detecting a major number of intestinal parasitic infections in any survey.

Clinical Notes, Suggestions and New Instruments

ARTERIOVENOUS ANEURYSM

THE APPROACH TO THE INNOMINATE VESSELS

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MEDICAL CORPS, ARMY OF THE UNITED STATES

Reports of successful treatment of lesions of the innominate artery are rare, particularly those that concern arteriovenous fistula. One of the main problems is the operative approach to the vessels which lie within the thoracic cage and which

in the presence of a communication between them increase the difficulties of proper exposure because of the dilatation of the vessels and the increased collateral circulation always attendant on such a lesion. Most textbooks of surgery describe methods of exposure with a view of ligating the innominate artery by resection of the clavicle and disarticulation of its medial end. This has usually been done for aneurysm of the innominate artery in its terminal portion or as

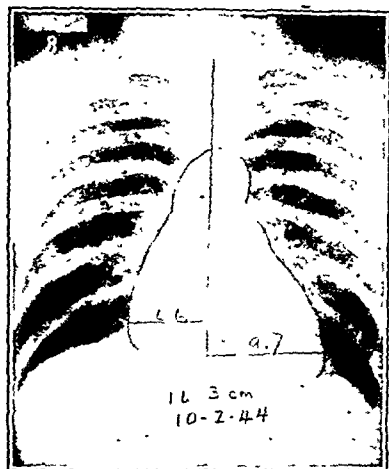


Fig. 1.—Cardiac dilatation eleven months after injury.

a preliminary to operations on the right subclavian and carotid vessels. This exposure is inadequate in the presence of an aneurysm or a fistula near the aorta. The constant danger of hemorrhage makes an adequate exposure imperative. Splitting the sternum to the third interspace and retraction of the divided portions, as is used in an approach to the thymus gland, would give good exposure, but in the presence of a fistula, with the danger of hemorrhage from dilated, thin-walled vessels, the approach described here is believed to be preferable.

Arteriovenous fistula, innominate vessels, produced by stab wound Nov. 11, 1943. Resection of clavicle, second rib and cartilage. Division of sternum and partial resection. Proximal and distal ligation of innominate artery. Ligation and division of right innominate vein. Recovery.

A soldier aged 25 was stabbed in the right upper chest with sharp-pointed barber scissors on Nov. 11, 1943. There was considerable bleeding from the wound. He became unconscious and was treated for shock by plasma and blood transfusion. Four days later he had apparently recovered and was returned to duty, which he carried out without difficulty or complaint. In the course of an examination on April 1, 1944 a murmur

was discovered in the anterior chest, and for this he was hospitalized and eventually transferred to Ashford General Hospital Nov. 6, 1944. He had no complaints except dyspnea on exertion.

There was a small healed wound on the anterior chest wall just below the right clavicle and 1 inch lateral to the sternal border. In this region there was a well defined continuous thrill, which was felt less distinctly in the neck and along the clavicle. A loud continuous murmur, intensified in systole, was audible. This was transmitted over the entire anterior chest and both shoulders and into both sides of the neck. It was heard over the back of the thorax. The blood pressure in the left brachial artery was 130/50 and in the right 140/40. The venous pressure in the left and right cubital veins was 210 mm. and 220 mm. of water respectively. The thrill and bruit could not be obliterated by pressure. A teleroentgenogram of the heart on October 2 showed a transverse diameter of 16.3 cm. (fig. 1) and after a month of rest this decreased to 15.2 cm. (fig. 2).

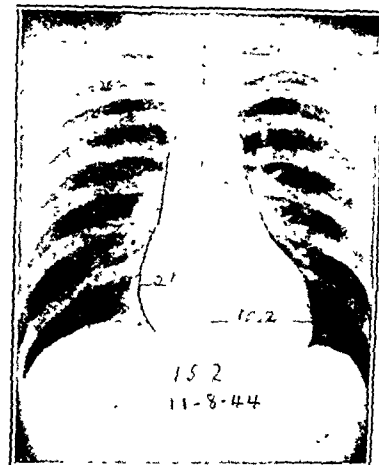


Fig. 2.—Reduction in cardiac size following one month of rest.

On Jan. 18, 1945 operation was performed. An incision beginning at the middle of the clavicle was carried medially to the sternum and downward to the fourth rib. The skin with the pectoral muscles was reflected laterally. The inner half of the clavicle was resected subperiosteally, disarticulating it at the sternoclavicular joint. The second costal cartilage and about 2 inches of the second rib were resected. By blunt dissection the space beneath the manubrium sterni was entered and the right portion of the manubrium was divided, leaving its connection with the first rib. A portion of the right half of the manubrium was removed with a rongeur. The pleura was dissected back by blunt gauze dissection from the midline

under the sternum, and the first rib with the attached portion of the manubrium was retracted upward and outward (fig. 4). The internal mammary artery and vein, with their branches, were ligated and divided, and the fat and remains of the thymus were removed. This disclosed the innominate vessels. After considerable dissection a fistula was found to exist between the innominate artery and the two innominate veins at their point of junction just above the arch of the aorta.

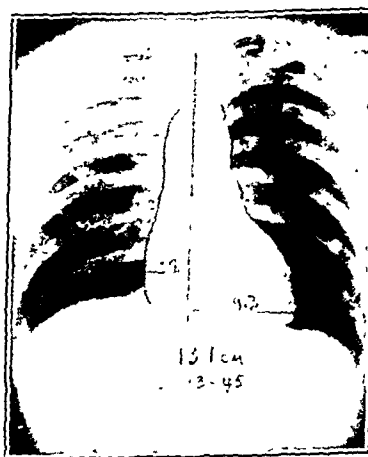


Fig. 3.—Return to normal cardiac dimensions one month after operation.

Both veins were greatly dilated, as was the artery proximal to the fistula, and in addition there was a false sac produced by local dilatation of the veins at the point of the fistula.

The right innominate vein distal to the fistula was ligated and divided. The false sac was separated from the aorta, to which it was firmly bound, and the innominate artery was

doubly ligated at the point of its origin from the aorta. When this was done the thrill and bruit ceased completely. On ligation of the artery the pulse rate dropped from 84 to 72, and the blood pressure rose from 136/60 to 156/100. The innominate artery distal to the fistula was then doubly ligated (fig. 4). It was not thought feasible to ligate the left innominate vein or the superior vena cava. Complete excision of the fistula would have required ligation and division of both innominate veins, the superior vena cava and the innominate artery, and because of the fear of cerebral edema this procedure was not carried out. The operation was discontinued at this time with the hope of eliminating the fistula, since there are no branches of the innominate artery which might communicate with it.

The portion of the sternum with the attached first rib was replaced and sutured with two wires of tantalum (fig. 5). The musculocutaneous flap was replaced with interrupted sutures of silk. At the end of operation the pulse rate was 68 and

tion of the heart on Feb. 15, 1945 showed a transverse diameter of 13.1 cm., a reduction of 2.1 cm. (fig. 3). The venous pressure in the cubital veins on that date was 154 mm. of water on the left and 234 mm. on the right. There is no

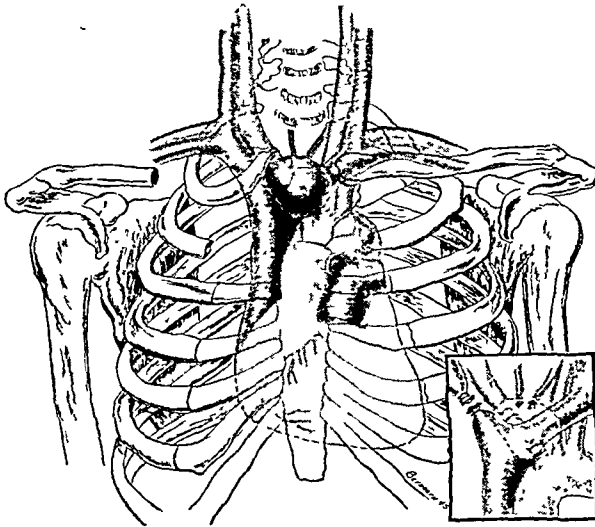


Fig 4—Arteriovenous fistula of the innominate vessels with false sac. Note resection of inner portion of clavicle and second rib, and retraction of the first rib with a portion of the sternum. Inset shows points of ligation and division of vessels

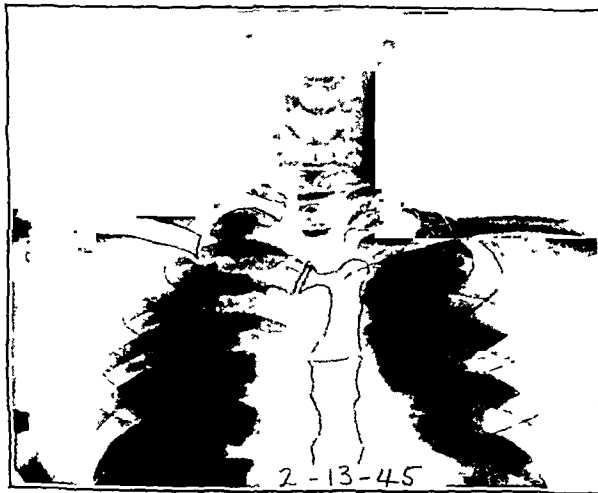


Fig 5—Postoperative appearance of chest (retouched).

the blood pressure 140/82. The operation required seven hours. The hand and fingers were warm at the end of the operation and have remained so. Recovery was uneventful except for an accumulation of blood beneath the pectoral muscles, which was removed by aspiration on three occasions. At no time during the patient's convalescence was the temperature elevated above normal, and the highest pulse rate was 100. Examina-

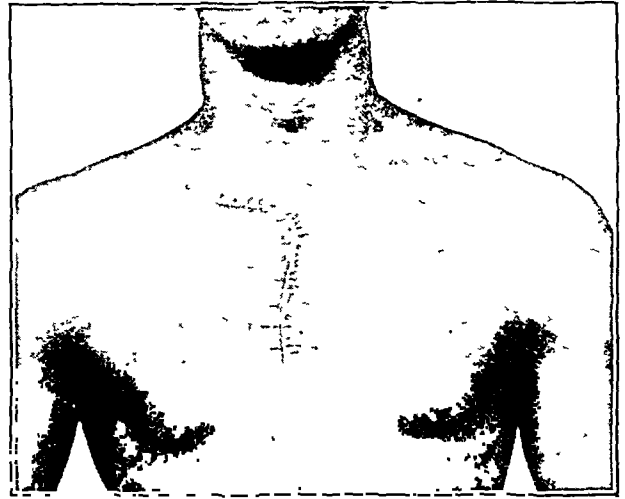


Fig 6—Patient six weeks after operation. Note line of incision and normal contour of chest.



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Special Article**POSTWAR PLANNING****EDUCATIONAL FACILITIES FOR
PHYSICIAN VETERANS**VICTOR JOHNSON, M.D., Ph.D.
CHICAGOLIEUTENANT COLONEL HAROLD C. LUETH
MEDICAL CORPS, ARMY OF THE UNITED STATESAND
F. H. ARESTAD, M.D.
CHICAGO

The analysis of the educational desires of over 21,000 medical officers published by Lueth¹ now makes possible an estimate of the probable required expansion of present teaching facilities. The previous tentative estimates based on questionnaires returned by only 1,000 medical officers² require some revision on the basis of the greatly increased information.

**EDUCATIONAL DESIRES OF MEDICAL OFFICERS
AFTER DISCHARGE**

The Committee on Postwar Medical Service³ has been concerned with the problems which will confront the discharged medical officer when the war is won. A major project of this committee has been a questionnaire survey of 60,000 medical officers in the armed forces to determine the additional education they will desire. Table 1, modified from Lueth,¹ summarizes

TABLE 1.—*Future Educational Desires of Medical Officers
by Graduation Groups*

Years of Graduation	Medical Officers Desiring			Totals	Per-centage of 21,029 Replies
	No Courses	Less Than 6 Months	6 Months or More		
1941-1943.....	95	292	4,006	4,393	20.9
1938-1940 ..	396	569	3,240	4,205	20.0
1935-1937 ..	776	919	2,067	3,762	17.8
1930-1934.....	1,201	1,396	2,127	4,724	22.5
1920-1929 ..	1,070	1,244	1,006	3,320	15.8
Before 1920.....	394	143	88	625	3.0
Totals.....	3,932	4,563	12,534	21,029	100.0

the results of 21,029 returns by graduation groups. There were 3,932 officers (19 per cent of those replying) who request no further training, 4,563 (21 per cent) who want review or refresher courses of less than six months' duration and 12,534 (60 per cent) who will seek work of six months or more, primarily in residency-type house officerships.⁴ In general, most of those in the older age groups expect either no further training or review and refresher courses lasting less than six months. The more recent graduates are pri-

marily interested in hospital work of six months or more. These findings were to be expected, although the large total numbers desiring advanced medical education, especially for the longer period, could not have been anticipated without the information received directly from the officers themselves.

HOUSE OFFICERSHIPS

In table 2 are analyzed the 12,534 requests for residency-type training in the various fields of medicine listed. About 70 per cent of the officers wanting training of more than six months' duration will seek it in the following four fields: Surgery and its subspecialties (3,497), Internal Medicine and its subspecialties (2,519), Obstetrics and Gynecology (1,353) and General Review (1,351). The fields indicated by the fewest (less than 100) officers are the following: Industrial and Insurance Medicine (14), Hospital Administration (15), Plastic Surgery (75), Neurological Surgery (76) and Public Health (87).

How may these requests for training from the replies of about 21,000 officers be translated into the probable demand from the total of 60,000 officers in the armed forces? There is no generally acceptable formula or statistical procedure for answering this question. Presumably the officers most interested in further training took the trouble to reply, but there may be considerable numbers wanting more education who could not or did not return the questionnaire. Perhaps it is justifiable to assume that the number of officers who indicated a desire for further work but who will be unable or unwilling to carry out their plans will be about equal to the number among those who did not reply to the questionnaire but who will actually seek advanced training when the time arrives. Should this be the case, we could consider the figures in column A of table 2 to indicate the approximate total house officerships required in all fields to meet the needs of all medical officers in all services on their separation from active duty.

REQUIRED EXPANSION OF EXISTING FACILITIES

In addition to returning medical officers, new generations of civilian graduates will seek advanced training. In the year 1941 there were 5,256 residents in the various fields of medicine, as indicated in column B of table 2. Together with the 12,534 medical officers, this totals 17,790 house officerships (column C) required after the war. Since there were 5,796 approved residencies, assistant residencies and fellowships in 1943 (column D), it might appear necessary to provide a total of the nearly 18,000 house officerships as listed in column C.

However, this staggering number, representing a tripling of the normal prewar number of places, would be required only if all medical officers should be discharged at once, which obviously will not be the case. Should demobilization extend over an appreciable period of time beyond the end of the war, the figures listed in column F would indicate the facilities required in addition to those now available. This expansion requires approximately a doubling of the existing house officer positions. In column G is estimated the per cent expansion required in all the fields of medicine.

Some of these percentages of column G may be misleading. The 458 per cent expansion required in General Review courses does not take into account that 721 civilian hospitals now approved for internships are

This report is based on studies by the Council on Medical Education and Hospitals of the American Medical Association and the Committee on Postwar Medical Service.

1. J. A. M. A. 127:759 (March 31) 1945.

2. J. A. M. A. 126:253 (Sept. 23) 1944.

3. The Committee on Postwar Medical Service was organized by the American Medical Association in collaboration with the American College of Physicians and the American College of Surgeons. In addition, it includes representatives of the Association of American Medical Colleges, the Surgeons General of the Army, Navy and Public Health Service, the Veterans Administration, the Federation of State Medical Boards, the American Hospital Association, the Catholic Hospital Association, the Procurement and Assignment Service and the Advisory Board for Medical Specialties.

4. It cannot be assumed that these proportions will apply to all 60,000 medical officers. See discussion in the adjoining column.

also approved for mixed residencies. These plus the 154 mixed residencies in approved hospitals should be ample to provide for the additional 705 places required for General Review residencies or "second year" internships. The 650 per cent increase indicated in Plastic Surgery must be qualified by the fact that the number of places required is small: only about 39 additional openings seem to be needed.

of officers (1,946) failed to specify the field in which they intend to qualify for certification. The smallest numbers (about 200 or less in each field) aim at certification in Neurologic Surgery (80), Plastic Surgery (93), Pathology (201) and Anesthesiology (207). Since there were even more officers who stated that they want certification (13,333) than will want training of six months or more (12,534), it follows that a

TABLE 2.—Estimated Additional Postwar House Officerships Required

Field in Which Training Is Desired	Column A	B	C	D	E	F	G
	Estimated House Officerships Required by All Medical Officers	Normal Prewar Numbers: Assistant Residents and Fellows in 1941 ^a	Estimated Total Postwar House Officerships Required (A Plus B)	Approved Residencies, Assistant Residents and Fellowships in 1943 ^a	Estimated Additional Postwar Facilities Required if Demobilization Occurred at Once (C Minus D)	Estimated Additional Facilities Required if Demobilization Extends Over a Period of Time	Per Cent Increase Above 1943 Facilities Shown in Column D
					Number of House Officerships (A/2 + B - D)		
Anesthesiology	156	121	277	128	149	71	55
Dermatology and Syphilology	225	78	303	82	221	108	132
General Review	1,351	183	1,534	154	1,380	705	458
Hospital Administration	15	...	15	...	15	7	...
Industrial and Insurance Medicine	14	...	14	...	14	7	...
Internal Medicine and Subspecialties	2,519	1,131	3,650	1,302	2,348	1,089	84
Neurological Surgery	76	36	112	60	52	14	23
Obstetrics and Gynecology	1,353	442	1,795	504	1,291	615	122
Ophthalmology	411	208	619	242	377	172	71
Orthopedic Surgery	487	200	687	243	444	201	83
Otolaryngology	362	233	595	229	366	185	81
Pathology	210	332	542	311	231	126	41
Pediatrics	497	393	890	389	501	253	65
Plastic Surgery	75	8	83	6	77	39	650
Psychiatry and Neurology	502	497	999	548	451	200	36
Public Health	87	...	87	...	87	43	...
Radiology	373	250	623	281	342	155	55
Surgery and Subspecialties	3,497	1,007	4,504	1,161	3,343	1,595	137
Urology	255	137	392	156	236	108	69
Other Fields	69	...	69	...	69	34	...
Totals	12,534	5,256	17,790	5,796	11,994	5,727	99

1. J. A. M. A. 116:1070 (March 15) 1941.

2. J. A. M. A. 122:1119 (Aug. 14) 1943.

Apart from these two special cases the fields requiring more than twice the 1943 facilities are Surgery and Subspecialties (137 per cent expansion), Dermatology and Syphilology (132 per cent) and Obstetrics and Gynecology (122 per cent). Internal Medicine and Subspecialties, involving large numbers of individuals, will require some 84 per cent increase in 1943 house officerships.

The least expansion of residency places would seem to be indicated in Neurological Surgery (23 per cent), Psychiatry and Neurology (36 per cent), Pathology (41 per cent), Anesthesiology (55 per cent) and Radiology (55 per cent).

SPECIALTY CERTIFICATION BY THE AMERICAN BOARDS

Since over 10,000 medical officers will seek residencies in definite specialties after the war, it is of interest to estimate the number of medical officers who intend to seek board certification. These figures are given in table 3, derived from Lueth's studies. The first column shows the numbers of physicians certified by the various American boards to March 1, 1945, the total being 24,752. In the second column are tabulated the numbers of officers who state that they will seek certification, totaling 13,333. Over half of these (56 per cent) expect to qualify for the American Boards in Surgery (3,450), Internal Medicine (2,644) and Obstetrics and Gynecology (1,368). A large number

goodly number of them already have considerable credit toward the requirements of the boards.

Should these projected certifications be consummated, there will be a decided increase in the number of

TABLE 3.—Specialty Certification by the American Boards

	Physicians Certified to March 1, 1945*	Medical Officers Desiring Future Certification
Anesthesiology	249	207
Dermatology	710	258
Internal Med	3,541	2,644
Obstetrics	163	80
Ophthalmology	1,871	1,368
Otolaryngology	2,437	433
Pathology	896	521
Plastic Surgery	3,848	412
Psychiatry	1,047	201
Radiology	2,318	522
Surgery	161	93
Urology	1,899	535
Field Not Specified	2,095	376
Totals	24,752	13,333

* J. A. M. A. 128:129 (May 12) 1945.

specialists in the next few years. It is beyond the scope of this paper to venture an estimate of the consequences of this trend on medical practice and care in this country or to conclude whether the trend should be encouraged or discouraged.

REVIEW AND REFRESHER COURSES

In table 4 is given a further analysis of the desires of medical officers compared with the facilities available for review and refresher courses of six months or less in duration. Included in this group are 860 officers who will want courses of three months or less in duration. Various educational institutions in the year 1943-1944 provided 233 such courses for 26,359 physicians in the various fields indicated. In virtually every specialty it would appear, on superficial examination, that existing facilities might perhaps meet the demands of the returning medical officers in these shortest courses. However, a word of caution is necessary. On the one hand, many of the 860 officers may wish training of nearly three months' duration. On the other hand, over 92 per cent of the physicians enrolled in the very short 1943-1944 courses attended for about two months or less and over

tutions with well organized postgraduate medical courses, and the larger clinics and hospitals. Externships and courses similar to those projected by the University of Wisconsin⁵ and Northwestern University⁶ are being developed by a number of schools. Semiannually the Council on Medical Education and Hospitals of the American Medical Association compiles and publishes a list of continuation courses for practicing physicians. The most recent publication⁷ is entitled "Postgraduate Continuation Courses for Veteran and Civilian Physicians" and includes numerous courses especially designed for physician veterans. This listing is the longest ever published by the Council and represents a wide range of subject matter and a broad geographic distribution. This is the first list to be published to meet the needs of returning medical officers. It is hoped that by the end of this year many

TABLE 4.—Full Time Review and Refresher Short Courses—Less Than Six Months

Field of Training	Three Months or Less Duration			Three to Six Months Duration			Duration Varies or Not Stated			Totals		
	Courses Given 1943-1944		Medical Officers Requesting Training	Courses Given 1943-1944		Medical Officers Requesting Training	Courses Given 1943-1944		Medical Officers Requesting Training	Courses Given 1943-1944		Medical Officers Requesting Training
	Number	Physicians Attending		Number	Physicians Attending		Number	Physicians Attending		Number	Physicians Attending	
Anesthesiology	3	534	13	1	6	44	1	5	35	5	545	92
Dermatology and Syphilology.....	3	55	16	..	..	47	10	41	42	13	96	105
General Review.....	26	2,385	96	..	..	294	5	73	220	31	2,458	610
Hospital Administration.....	..	..	..	..	..	5	..	..	25	..	..	30
Industrial and Insurance Medicine ..	..	..	2	..	..	2	..	..	17	..	..	21
Internal Medicine and Subspecialties	97	19,651	207	7	44	518	7	79	308	111	19,774	1,033
Neurological Surgery.....	..	..	3	..	..	7	..	..	7	..	..	17
Obstetrics and Gynecology.....	16	151	88	1	8	212	..	..	140	17	159	440
Ophthalmology	21	320	57	2	33	80	..	..	58	23	353	195
Orthopedic Surgery.....	3	14	20	..	..	43	..	..	61	3	14	124
Otolaryngology	13	131	51	3	10	81	2	7	86	18	148	218
Pathology .....	..	..	10	1	7	23	2	25	27	3	32	60
Pediatrics	12	291	88	..	..	138	..	..	60	12	291	286
Plastic Surgery.....	..	..	4	..	..	18	..	..	26	..	..	48
Psychiatry and Neurology.....	7	1,073	19	..	..	69	8	182	70	15	1,255	158
Public Health.....	..	..	..	..	..	10	..	..	13	..	..	23
Radiology	4	38	25	..	..	61	2	16	50	6	54	136
Surgery and Subspecialties.....	25	1,708	134	1	10	350	1	1	346	27	1,719	830
Urology	3	8	22	..	..	49	..	..	37	3	8	108
Other Fields.....	..	..	5	..	..	11	..	..	13	..	..	29
Totals	233	26,359	860	16	118	2,062	38	429	1,641	287	26,906	4,563

90 per cent of them were in courses of about one month or less.² It is likely that a considerable increase in facilities will be required in courses of about three months' duration, especially in Internal Medicine (with 207 requests for training), Surgery and Subspecialties (134 requests), General Review (96), Obstetrics and Gynecology (88) and Pediatrics (88).

The statistics in table 4 indicate clearly that there must be an extensive organization of courses lasting from three to six months. Although in 1943-1944 only sixteen such courses were given to 118 physicians, there are 2,062 medical officers who will want work of this duration. The greatest numbers want training in Internal Medicine (518), Surgery (350), General Review (294) and Obstetrics and Gynecology (212). The greatest numbers of men who failed to specify the duration of their anticipated courses (totaling 1,641) also indicate an interest in further education in just these four fields.

Meeting this demand for courses of about three to six months' duration is primarily the responsibility of the medical schools, the medical school hospitals, insti-

more courses will have been organized especially for veterans, which can be included in the next published compilation of courses for veterans and other physicians scheduled for late December 1945 or early January 1946.

In planning review and refresher courses, the following should be borne in mind: (a) Refresher courses in the fields of Internal Medicine, Surgery, General Review, Obstetrics and Gynecology and Pediatrics are especially needed; (b) these should be courses of about three to six months' duration; (c) courses should be organized to start as soon as there is an enrolment of ten or fifteen, for example; (d) veterans should not have to wait unduly long to commence the work, so that programs permitting enrolment each month are desirable; and (e) plans should be based on the justifiable assumption that most of the medical school faculties now in service will be released by the time the peak demand for review and refresher courses is reached.

5. Circular, "Postgraduate Medical Courses," the University of Wisconsin Medical School.
6. J. A. M. A. 127:741 (March 31) 1945.
7. J. A. M. A. 128:751 (July 7) 1945.

EXPANSION OF HOUSE OFFICERSHIPS

In collaboration with the Committee on Postwar Medical Service, the Council on Medical Education and Hospitals of the American Medical Association has circularized all the 1,054 civilian hospitals now approved for internships and residencies to ascertain the extent to which their facilities would warrant increases in numbers of residents in already approved residencies and the organization of new residencies in fields not now approved. The results to date, given in table 5, are most encouraging.

Replies from 292, or 28 per cent, of the hospitals indicate that they believe they can provide 2,382 additional residencies, which is 42 per cent of the estimated 5,727 additional residency positions required. Of these new residency places, over two thirds have already been surveyed by the Council staff and have been approved both by the Council and by the American board concerned. This means that there is already a large number of fully approved openings available for returning medical officers. Less than one third of

TABLE 5.—*Expansion of Residencies in 292 of the 1,054 Civilian Hospitals Approved for Internships and/or Residencies*

Field of Training	Estimated Additional Requirement (2 Year Demobilization)	Additional Available in 292 Hospitals
Anesthesiology.....	71	102
Dermatology and Syphilology.....	108	54
General Review.....	705	77
Hospital Administration.....	7	..
Industrial and Insurance Medicine.....	7	..
Internal Medicine and Subspecialties.....	1,089	457
Neurologic Surgery.....	14	40
Obstetrics and Gynecology.....	615	209
Ophthalmology.....	172	77
Orthopedic Surgery.....	201	107
Otolaryngology.....	185	87
Pathology.....	136	127
Pediatrics.....	253	143
Plastic Surgery.....	39	17
Psychiatry and Neurology.....	200	258
Public Health.....	43	..
Radiology.....	155	133
Surgery and Subspecialties.....	1,595	416
Urology.....	108	78
Other Fields.....	34	..
Totals.....	5,727	2,382

the places are in new residencies yet to be approved in hospitals already approved for internships and/or residencies in some other field. Surveys of the hospitals involved will be carried out well in advance of the peak of demobilization and the demand for residencies. See page 55 of this issue for further discussion.⁸

The statistics in table 5 would seem to indicate that, if all the residencies planned by the hospitals which have now reported are acceptable to the Council and the boards, the needs of the returning medical officers have already been practically provided for in Anesthesiology, Neurological Surgery, Pathology, Psychiatry and Neurology, and Radiology. This table also indicates that there is little doubt that the required facilities will probably be provided without too much difficulty in most other fields, if planning continues as earnestly as it has commenced.

At the residency level it would appear that provisions for training in Surgery will require further careful consideration, because of the large numbers involved. In this field it is especially important that the following devices be employed to increase the number of places available: (a) affiliation of approved hospitals with hospitals which, although not approved for

full residencies, seem able to provide some acceptable training, under the supervision of the approved hospital; (b) affiliation of hospital training programs with high grade board-certified surgeons in private practice, on a preceptor basis; (c) assignment of surgical residents to work in related fields in which the demand for additional house officerships will not be as great, such as Pathology and Radiology, and (d) assignment of residents to work in applied basic sciences.

In September 1945 the Council on Medical Education and Hospitals of the American Medical Association will publish its annual compilation of approved internships and residencies. This list will indicate the expanded number of places provided by those hospitals already approved for such training. This will be the first up-to-date listing of residency facilities for returning medical officers as well as other physicians.

ARMY AND NAVY EDUCATIONAL PROGRAMS

The armed forces have recognized the necessity for engaging in educational programs, especially for those younger officers whose assignments have necessarily been relatively nonprofessional or at least not such as would contribute materially to the officer's educational armamentarium in medicine. The need for such training is recognized by the Surgeons General, not only for the good of the officer himself but also because experience has amply demonstrated that medical care is improved in institutions and installations conducting educational programs. This applies to civilian and military hospitals alike.

The Navy and the Army Air Forces have concentrated primarily on hospital residencies. These have been and are being developed in close collaboration with the Council on Medical Education and the American boards. The aim is to organize residencies of sufficiently high caliber to diminish the load on civilian hospitals after the war. After inspection and consultation services by the Council, it is anticipated that numerous Air Force and Navy residencies will be added to the list of Council approved and Board acceptable residencies, to be published in revised form in September.

The Army is now engaged in organizing refresher and review courses of three months' duration. A further account of this program, as well as the house officerships of the Navy, appears elsewhere in this issue of THE JOURNAL.⁹

THE G. I. BILL OF RIGHTS

The educational benefits of the G. I. Bill of Rights (Public Law 346) as applied to physician veterans have been described in a previous publication.¹⁰ In summary, it may be said that (a) medical schools and hospitals are included as eligible for certification as educational institutions under this act, (b) approved hospitals are entitled to tuition benefits (\$500 per academic year of nine months) even if tuition has not customarily been charged in the past, provided the hospital can show that tuition is warranted on the basis of the costs of the educational program, (c) this tuition stipend may in turn be added to other stipends offered to the house officer if the hospital chooses, (d) the resident is eligible to receive his allowance under the G. I. bill, even if he is paid a stipend by the hospital, and (e) there will be a very liberal interpretation of the "interruption of training" provision of the law for men over 25 years of age.

8. Approved Internships and Residencies for Veteran and Civilian Physicians.

9. This issue, p. 37.

10. J. A. M. A. 126:709 (Nov. 11) 1944.

SUMMARY

1. Approved residencies in the specialties will have to be approximately doubled in number to meet the needs of physician veterans and new generations of medical graduates.

2. It is incumbent on hospitals and medical schools to effect this increase by expanding the places available in existing approved residencies, and by developing new residencies where the educational facilities seem to warrant it.

3. Hospitals approved for residencies should affiliate with such hospitals as seem capable of organizing some acceptable work under the direction of the approved institution, which might then rotate its residents through the affiliated hospital for a limited period of time.

4. To date, 28 per cent of the approved hospitals have indicated that they think they can provide 42 per cent of the increased number of residencies needed after the war. Two thirds of these places have already been approved by the Council on Medical Education and Hospitals of the American Medical Association.

5. The number of medical officers who state they will seek specialty board certification is over one half the number who have already been certified.

6. In addition to the continuation courses now available to physicians, there is a need for a considerable number of full time review and refresher courses of about three to six months' duration. Several medical schools have already organized such facilities.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary.

YEAST EXTRACT CONTAINING VITAMIN B COMPLEX (See New and Nonofficial Remedies, 1944, p. 606). The following dosage form has been accepted:

MCNEIL LABORATORIES, INC., PHILADELPHIA

• **Brewers' Yeast Tablets:** 0.32 Gm. Each tablet contains brewers' yeast 0.32 Gm., providing thiamine hydrochloride 0.167 mg. (55.5 U. S. P. units), riboflavin 0.023 mg. and niacin 0.195 mg.

Preparation.—

Dried Brewers' Yeast—U. S. P.—Granulated with a mixture of calcium carbonate, starch, sodium chloride, dried malt syrup, saccharin, vanillin, oil of chocolate and talc. The mixture is compressed into tablets.

PENICILLIN (See the Supplement to New and Nonofficial Remedies, 1944, p. 18).

The following dosage form has been accepted:

WILLIAM R. WARNER & CO., INC., NEW YORK

Penicillin Sodium: 100,000 Oxford Unit ampuls.

HEXESTROL (See THE JOURNAL, Dec. 9, 1944, p. 961).

The following additional dosage form has been accepted:

THE Wm. S. MERRELL COMPANY, CINCINNATI

Solution Hexestrol in Oil 5 mg. per cc.: 20 cc. ampuls. Preserved with 0.5 per cent chlorobutanol.

RIBOFLAVIN (See New and Nonofficial Remedies, 1944, p. 613).

The following dosage form has been accepted:

LAKESIDE LABORATORIES, MILWAUKEE

Tablets Riboflavin: 5 mg.

CONTRACEPTIVE DIAPHRAGMS (See New and Nonofficial Remedies, 1944, p. 340).

The following product has been accepted:

CONTRA CREME AND DIAPHRAGM CO., SEVERNA PARK, MD.
U. S. trademark 355,838.

Contra Diaphragm: Latex rubber diaphragm covering a spiral spring, the external diameter varying in gradations of 5 mm. from 50 to 95 mm.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report.

HOWARD A. CARTER, Secretary.

MAICO TYPE K VACUUM TUBE HEARING AID ACCEPTABLE

Manufacturer: Maico Company, Inc., 21 North Third Street, Minneapolis.

The Maico Type K is a three tube vacuum tube instrument consisting of a transmitter and amplifier case, a battery unit and an air or bone conduction reproducer.

Physical dimensions: Case: 4½ inches by 2½ inches by 1½ inches; 45 volt B battery: 3½ inches by 2 inches by 1½ inches; 1½ volt A battery: 3½ inches by 1½ inches (rod shaped).

Weight: Transmitter and amplifier case, 7 ounces; 45 volt B battery, 9 ounces; 1½ volt A battery, 4 ounces; total weight of instrument, 20 ounces.

Current consumption: A battery, 70 milliamperes at 1.5 volts; B battery, 1.7 milliamperes (with 1.5 volt A battery). The current drain is independent of the volume control setting.

Acoustical gain for speech: With large crystal receiver (1 inch diameter) and full volume, 45 decibels. This gain represents the average gain for three individuals, each of whom had losses of from 40 to 50 decibels for air conduction from 256 to 2,048 cycles. These individuals perceived speech through a high quality sound reproduction system at an average level of 45 decibels less intensity with the hearing aid than without it.

Acoustical gain for pure tones:

Frequency:	250	500	1,000	2,000	3,000	4,000	5,000
Full gain in decibels	29	32	45	56	47	33	17

These values were obtained with the large size crystal receiver, the tone controls being adjusted for maximum low and maximum high frequency response. The measurements were obtained with an artificial ear. The hearing aid was mounted on a body baffle.

Physical and mechanical features: The transmitter and amplifier case consists of a rectangular black plastic case of pleasing and more or less conventional design. A combined volume control and on-off switch, a round knurled molded plastic wheel, is conveniently located on the top of the case. The high frequency tone control adjustments are made by the insertion of small screws in the back of the instrument and the low compensation by the insertion of screws in the front of the chassis, accessible only by taking apart the case. The instrument has both high and low impedance output, enabling one model to be used with crystal or magnetic air conduction receivers or with high or low impedance bone conduction reproducer.

Performance: The instrument operates in an entirely satisfactory manner. There is a minimum of inherent amplifier, case and cord noise. The frequency compensation controls perform as represented.

Recommendations: The Council on Physical Medicine voted to include the Maico Type K Vacuum Hearing Aid in its list of accepted devices.



Maico Hearing Aid Type K.

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

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EDUCATIONAL PLANS FOR RETURNING PHYSICIAN VETERANS

This series of articles presents concise descriptions of specific plans for meeting the educational needs of returning medical officers. It is hoped that these concrete programs will assist and perhaps guide other postwar planning groups such as medical schools, medical societies, specialty boards, foundations and other organizations, some of which may not yet have completed their plans for meeting this urgent need in medical education.

These brief articles on typical plans do not constitute a comprehensive coverage of the many definitive projects under way throughout the country. Such coverage is attempted elsewhere in this issue (see page 28) and more fully in other recent publications of the Council on Medical Education and Hospitals of the American Medical Association.¹

While the army and navy educational programs are for medical officers still on active duty, descriptions of them are included in this series because many of the officers benefiting from this work may soon return to civilian practice. Thus such programs for officers in service will supplement the projects of civilian institutions and organizations which seek to provide educational facilities for physician veterans.

THE PLAN IN NORTH CAROLINA

Wilburt C. Davison, M.D.
Dean, Duke University School of Medicine

All veterans, regardless of the age at which they entered the service and whether or not they had been in practice, are eligible under the G. I. Bill of Rights for a retraining course of one year at any institution approved by the Veterans Administration, which will pay fees to the institution up to \$500 per year and a subsistence allowance of \$50 monthly to the veteran; \$75 if he has a dependent. On completion of this one year course, veterans who entered the service under 25 years of age and those, regardless of age, who can show that their training was impeded or interrupted by their entrance into the service also are entitled to additional training of the same number of months they have been in the service. In other words, a medical officer who has been in the armed forces for thirty

months and entered the service at the age of 25 years or, regardless of age, had been an intern or resident but had not completed his resident training is eligible for three and one-half years of postwar training, i. e. one year plus thirty months.

Medical officers are of four groups: (a) former general practitioners, (b) ex-interns with nine to twelve months of training, (c) ex-residents with eighteen to thirty-six months of hospital experience and (d) former specialists. It is impossible to foretell accurately how many of the returning ex-interns and ex-residents will want exclusive training in the specialties, but it is hoped that many of them will decide to go into general practice, in which they are greatly needed. All but 15 per cent of patients can and should be handled by general practitioners, yet the results of the recent poll of the armed services indicated that more than 50 per cent of the medical officers intended to specialize on their return. Obviously there must be a variety of possibilities, which will provide whatever type of training the returning medical officer desires. The plan presented here will be followed by the medical schools of Duke and North Carolina universities, the Bowman Gray School of Medicine of Wake Forest College and the cooperating North Carolina hospitals.

1. Postgraduate Continuation Courses for Veteran and Civilian Physicians, J. A. M. A. 128: 751-761 (July 7) 1945.
Approved Residencies and Fellowships for Veteran and Civilian Physicians (to be published).
Lueth: Postgraduate Wishes of Medical Officers 127: 759-770 (March 31) 1945.
Johnson, Lueth and Arestad: Educational Facilities for Physician Veterans, this issue, p. 28.

Refresher or brush-up courses can be given at Duke and the Bowman Gray School of Medicine of Wake Forest College for the former practitioners by appointing additional instructors in medicine, pediatrics and obstetrics, at each of the two schools. It is realized that refresher courses are the least satisfactory method of postgraduate education. However, many of the medical officers who have been in practice may wish to return to their homes as quickly as possible to start rebuilding their incomes, so these refresher courses may have to be arranged in repeated short doses, emphasizing the recent medical advances, to accommodate the physicians who can spare only a week or two at a time.

The ex-interns and ex-residents, as well as some of the former general practitioners, may wish three to twenty-four months of hospital training in the specialties, and additional residencies will be provided. For example, the North Carolina teaching hospitals had six prewar approved pediatric residencies, but arrangements have been made with the pediatricians in the other hospitals for ten additional pediatric residents. Under this plan the hospitals can appoint sixteen residents instead of the usual six, each of whom would spend three to six months at one or more of these hospitals under the supervision of a licentiate of the American Board of Pediatrics, thereby obtaining a broader training than would be possible in one institution. A similar program has been planned in the other specialties and combinations of specialties. If the returning medical officers who have families prefer these residencies as externships, they will be arranged.

Hospital experience and tutoring for the former specialists can be easily arranged with the licentiates of the various specialty boards. The experience of working in a busy specialist's office should greatly help these returning officers to bring their knowledge up to date.

In addition, training will be provided at the three North Carolina medical schools in the basic medical sciences—*anatomy, biochemistry, physiology, pharmacology, bacteriology and pathology*—for at least three reasons: first, the requirements of the specialty boards must be satisfied; secondly, the practitioner needs this training to help him improve his practice of medicine, and finally it is highly desirable to encourage some of the returning medical officers to become teachers in these subjects, in which they are greatly needed if good teaching and high research levels are to be maintained after the war.

All plans must be modifiable to accommodate for the wide range in the returning medical officers' prewar status, their variety of war experiences—*field or hospital duty*—and their rate of demobilization. For example, some of the ex-interns and ex-residents who return each year may elect to specialize in pediatrics and desire one or more years of pediatric residency, while others may want to become general practitioners and need only refresher courses in pediatrics, obstetrics and medicine. This plan is flexible enough to fit these various needs and can be started tomorrow morning or at any time a medical officer returns. Further information can be obtained by writing to the deans of the University of North Carolina School of Medicine, Chapel Hill, N. C., of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C., and of Duke University School of Medicine, Durham, N. C., or to the Postwar Planning Committee of the Medical Society of the State of North Carolina, Box 3701, Durham, N. C.

REVIEW AND REFRESHER COURSES

Ovid O. Meyer, M.D.

Professor of Medicine, University of Wisconsin Medical School

The University of Wisconsin Medical School has four plans for meeting the desires and needs of physicians returning from military service. Particular emphasis is to be placed on a review and refresher course of twelve weeks' duration. This course is planned especially for returning general practitioners and has the purpose of review and study of the recent advances in the major fields of medicine. Four weeks will be devoted to medicine (including a week of neuropsychiatry), four weeks to general surgery and allied specialties, two weeks to pediatrics and two weeks to obstetrics and gynecology.

This course will consist of ward rounds, instruction in basic sciences with clinical application, clinics, lectures, conferences and round table discussions. Instruction hours will be from 8 a. m. to 12 noon and from 2 to 5 p. m. daily (Saturday afternoons excluded). This course will be limited to twenty, with a minimum of ten. The first session will be offered when ten enrollees are registered with the dean of the Medical School and the course will be repeated each three months while the demand exists. The instructors in this course will be those of professorial rank on the full time or part time staff of the Medical School. The practical will be emphasized.

The course for medicine (after rounds from 8 to 11 each morning) will include three weeks covering advances in laboratory medicine and clinical biochemistry, cardiovascular physiology, allergic diseases, malaria, chemotherapy, nutrition, common skin diseases and proctoscopy. Extended discussions and clinics covering the blood dyscrasias and hemorrhagic diseases, diseases of the gastrointestinal tract and jaundice, renal diseases, tuberculosis, hypertension, cardiovascular diseases and endocrine dysfunctions will be a part of the course.

The subjects to be covered in the week of medicine devoted to neuropsychiatry are the neurologic examination, neuroanatomy, cerebral apoplexy, subarachnoid hemorrhage, traumatic lesions, polyneuritis, basal ganglions, central nervous system tumors, central nervous system syphilis, diagnostic procedures, discussions on the psychiatric patient, the diagnosis and therapy of the psychoses, and the psychoneuroses.

The two weeks in pediatrics will be allotted for study of care of the premature infant, chemotherapy in children, rheumatic infection and its prevention, pediatric dermatology, treatment of hemangioma in infancy, technique of intravenous and bone marrow transfusions, infant feeding, diarrheas, pancreatic diseases, congenital defects, diseases of the newborn and respiratory diseases, congenital heart disease, hypertension, convulsions, intestinal parasites, management of megacolon, meningitis, communicable diseases, disturbances in growth, nutritional deficiencies and urologic conditions in childhood.

The surgical work of four weeks will emphasize surgical anatomy and the techniques of special examinations, as in orthopedics and neurosurgery, for example. In addition the following subjects will be covered: anesthesia, the optic fundus, acquired and congenital anomalies, chemosurgery, the treatment of traumatic wounds, varicose veins, genitourinary infections, gallbladder and liver disease, burns, hernia, prostatic disease, diseases of the breast, appendicitis, empyema,

urologic neoplasms, peptic ulcer, gastric carcinoma and surgical pulmonary, esophageal and rectal diseases.

Two weeks will be assigned to obstetrics and gynecology, during which time the following subjects will be covered: pelvimetry, vomiting of pregnancy, abortion and premature labor, pain relief in labor, obstetric hemorrhages, normal pregnancy, minor complications of pregnancy, toxemias, normal labor, complications of the newborn, sterility, methods of gynecologic examination, leukorrhea, diseases of the cervix and of the uterus, management of the normal puerperium, puerperal infections and complications of the menopause, cesarean section, treatment of cancer of the female genital tract, diseases of the tubes and ovaries, female endocrinology, backache, radiation therapy in gynecology, and uterine malpositions. Three afternoons will be devoted to manikin demonstrations.

In addition to these review and refresher courses, the University of Wisconsin offers training for physicians in three other categories, as follows:

1. For those who wish to acquire specialty training for certification, three year residencies in all of the specialties will be available. It is planned to increase the number of residencies from a prewar number of approximately forty to about sixty.

2. A two to six months course for specialists will be available. Attendance will be open only to those who have had training in their specialty. It is designed as a review and refresher course for specialists. This course will emphasize preclinical as well as clinical aspects of each specialty and recent advances of the respective fields. The training will be both theoretical and practical and will be available in the departments of internal medicine, neuropsychiatry, surgery, obstetrics and gynecology, pediatrics, urology, orthopedics, otorhinolaryngology, ophthalmology, dermatology and physical medicine.

3. The preclinical departments are open to properly qualified men and women who wish to work for one year or more on any project in which they are interested.

SURVEY OF FACILITIES FOR TRAINING IN A SPECIALTY

Ralph K. Ghormley, M.D.

Chairman, Joint Committee of the American Orthopaedic Association
and the American Academy of Orthopaedic Surgeons

The American Board of Orthopaedic Surgery has recognized for some time the need for institutions which could furnish training to discharged medical officers who have not been able to complete the requirements for examination by the board and for those who may wish to repeat any phase of training in orthopedic surgery. The secretary of the board, Dr. Guy Caldwell, pointed out this need months ago and, as chairman of the Section on Orthopedic Surgery of the American Medical Association, he has emphasized the need for more facilities for the training of orthopedic surgeons.¹

The executive committees of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons, also realizing the importance of furnishing the necessary facilities for training such as has been mentioned, appointed a joint committee to plan for this important work. This committee has cooperated closely with the American Board of Orthopaedic Surgery. It seemed to the members of

the board, as well as to the executive committees of both organizations, that the task would be best accomplished by such a joint committee rather than to leave it entirely to the board.

The joint committee studied the problem before it with two things in mind. First, adequate orthopedic training is now composed of three branches: adult orthopedic surgery, children's orthopedic surgery and the surgery of fractures and trauma. None of the surveys available seemed to show the true picture as to the number of institutions available for training in those branches. Second, the reports on Lieut. Col. Harold C. Lueth's surveys² were studied and the number of additional residencies probably needed was noted.

The conclusions of the joint committee were that its first task was to survey the facilities which could be used for training orthopedic surgeons. This survey must be on a nationwide scale.

It was found that partial surveys had been made in some areas by various orthopedic surgeons for local societies. Using these individuals as far as possible, and appointing other orthopedic surgeons familiar with conditions in their communities, the entire nation was divided into districts and each district was assigned to an orthopedic surgeon who the committee felt should be able to furnish the desired information. These men were asked to furnish the joint committee with the names of hospitals where orthopedic facilities were available, the number of beds available for each of the three divisions of orthopedic training, the number of residencies now available and the number of residencies contemplated in the postwar period.

In many instances the surveyors made personal visits to the centers on which they reported, thus getting first hand information and being able to offer suggestions to those concerned. The questionnaires used were made as simple as possible because the members of the joint committee felt that a large mass of needless information was often confusing, whereas the accurate recording of a minimal number of pertinent facts would constitute a much more workable survey. In some instances additional information was furnished, such as the number of hospital admissions, lists of the types of cases treated and operations done. These too were reviewed by the joint committee.

It was pointed out by the joint committee that the inclusion of an institution in the survey did not accredit that institution for training orthopedic surgeons. Accrediting must be by the Council on Medical Education and Hospitals of the American Medical Association, and approval must be by the Committee on Hospitals of the American Board of Orthopaedic Surgery.

From the reports of the various surveyors, the facts have been tabulated. The joint committee has reviewed all the results of the survey and has noted the following facts. First, because of the war, with the shortage of personnel and restriction of the number of residencies, many services are not as well staffed as in peacetime. Many of these services would welcome men from the armed services at once to augment their resident staffs. Second, a good many services are organized with adequate facilities and personnel to furnish good training for orthopedic surgeons but have not been accredited by the Council on Medical Education and Hospitals for such training. Many of these will be surveyed by the Council and accepted by the board, thus augmenting the

1. Caldwell, G. A.: Postwar Challenge to Orthopedic Surgery, *J. A. M. A.* 126: 269-271 (Sept. 30) 1944.

2. Lueth, H. C.: Future Educational Objectives of Medical Officers, *J. A. M. A.* 125: 1099-1103 (Aug. 19) 1944; Postgraduate Wishes of Medical Officers, *ibid.* 127: 759-770 (March 31) 1945.

number of services available for training. Third, many facilities have adequate personnel and material but are not organized for training orthopedic surgeons. In most instances, officials of these institutions have expressed a desire and willingness to organize themselves for such work. The members of the joint committee feel that their main duty from now on is to help such units complete their organization in order to furnish training for orthopedic surgeons.

One of the problems the joint committee is considering is the proper placement of men in institutions to complete their training. Just which phase of orthopedic training each individual will need is not now apparent to the joint committee. It is hoped that the joint committee will be able to determine this in each instance or, at least, in a general way. If needs of individuals can be determined, a more definite plan for supplemental postwar training can be worked out in each case than otherwise would be possible.

The joint committee feels its responsibility to the men returning to civil practice from the armed services. It is fully aware, however, of the fact that much harm can be done by encouraging the use of institutions where personnel or material is inadequate. The standard of training must be kept up to a high level; otherwise the very purpose for which all are striving will be defeated. It is hoped that the efforts made will lead to a workable plan, whereby every man who leaves the service may be able to fulfil his program of training and return to civil practice with a well rounded and adequate program of instruction.

THE CONTRIBUTION OF A FOUNDATION

Robert S. Morison, M.D.

Assistant Director, Medical Sciences, the Rockefeller Foundation

In setting up its plan for aiding in the postservice education of returning medical officers, the Rockefeller Foundation sought to help reestablish the flow of men trained as teachers and investigators in the various branches of medicine. The normally very long training of such men ceased abruptly at the onset of war, and it seemed likely that the country would suffer a deficit in the supply of teachers, a deficit equal to a normal five to ten year output. Estimates of the further deficit in the number of "second generation" students whose training would suffer from a lack of competent young teachers cannot be accurate. The situation promised to be sufficiently grave, however, to justify a particular concern for prompt expansion in the training of such personnel as soon as decreasing military requirements allowed. It was also hoped that, if a plan could be set up in working order early in the emergency, it might demonstrate the possibilities and pitfalls likely to be encountered when large scale efforts become necessary later on.

In devising a scheme to meet these obvious needs, two principles appeared to be fundamental: flexibility and rapidity of action. The postwar needs, desires and capabilities of medical officers do not fall into a few simple categories susceptible of manipulation by rigid rules. The services in which they wish to receive further training differ in organization, numbers of patients, kinds and amounts of equipment, types of problems investigated and academic tradition. Thus, if advanced training is to be a success, the diverse characteristics of the man seeking training must be

fitted to the opportunities and needs of the service in which he wishes to work. Careful individual consideration of returning medical officers is especially necessary because these men are as a rule further advanced on the nonprofessional side of their life than they are in medicine. In many instances they have acquired family responsibilities and a standard of living more appropriate to a man well established in practice or an investigative career. The peculiar demands of military life have developed their personalities and attitudes far beyond those usual in a resident hospital staff. Yet their formal medical training may have consisted only of a scanty nine months internship.

This process of adapting the opportunity to the man must be done quickly. Not only the officers but the hospitals and medical schools are impatient to set to work repairing the holes torn in medical education by the war. Another more personal consideration counseled the wisdom of promptness. It was felt that many men isolated in the outposts of a world at war might be stabilized and encouraged by early assurance that definite, well planned opportunities await their return.

In order to ensure speed and flexibility the foundation decided to leave the selection of men and the planning of individual programs entirely to the heads of the various departments to which funds have been allocated. When possible the department head has submitted a sketch of his plans to the foundation so that it may judge whether it falls within the very broad limits set up by the trustees. A record is also being kept of the names and qualifications of the men appointed. Aside from these very general requirements, the department heads have been free to expend the funds as seems best to them. The sums allocated to the various medical school departments participating in the program have varied between \$4,000 and \$8,000. In a few cases the entire sum will be devoted to providing a single relatively advanced man with an appointment of two or three years' duration. In others, small amounts will be given to several men as a supplement to income derived under the G. I. Bill of Rights. The duties and opportunities of the various positions will also vary from those of the familiar senior internship to the relatively advanced responsibilities of a junior member of the regular teaching and research staff. Several of the programs include study in the basic sciences related to the clinical specialties in which the assistantships are held.

One further technical point is worth mentioning: The holders of these appointments will have titles conferred by the participating institutions and appropriate to the particular individuals concerned. They are not to be known as Rockefeller fellows, and no negotiations with candidates are carried out by foundation officers. Announcement of appointments, as indeed are all other technical details, is left to the participating departments.

No effort even approaching the magnitude of the necessity could be made by a single individual or foundation. The total funds allocated by the Rockefeller Foundation now stand at \$500,000. These have been divided between 65 departments in 26 schools. As this is written 34 appointments have already been made, in spite of the difficulty of arranging many of the details so far in advance of the date of expected demobilization. Unquestionably there is an enormous demand for the sort of training contemplated by the program. The foundation is therefore only too acutely aware of the inadequacy of its support, which can at best provide 250 men with a training appointment of one year.

NAVY RESIDENCIES

Rear Admiral W. J. C. Agnew (MC)

Assistant Chief, Bureau of Medicine and Surgery, United States Navy

This subject has been proposed to the Bureau of Medicine and Surgery of the United States Navy for presentation in the symposium on postwar educational rehabilitation of medical officers. It is true that the establishment of a definite program for residency-type training in the specialties in naval hospitals has had such rehabilitation as one of its objectives, but the full scope of the program includes much more than this one phase of graduate medical education.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION¹ recently afforded the Surgeon General the opportunity to outline in considerable detail the program of the Medical Corps of the Navy for internships and residency-type training. The latter was merely a logical outgrowth of the former, internships in naval hospitals having existed with formal Council approval for approximately twenty years.

The purposes in instituting a concrete plan for more advanced medical training in naval hospitals generally and uniformly throughout this country, to be based on the best of civilian standards, were outlined in the paper referred to. As stated, "This interest in the development of an educational program was . . . primarily and fundamentally because we are concerned with . . . improvement and betterment in standards of medical care of our patients. It has been entirely incidental to this that better than average opportunities for internship and residency-type training are thus provided for our medical officers."

The design of the plan was to establish by general order to medical officers in command of United States naval hospitals certain fixed, fundamental standards covering supervised study and treatment of patients, formal clinical rounds, departmental and general staff conferences, and the maintenance of excellent libraries and other educational and training facilities. Simultaneous requests were made to the Council on Medical Education and Hospitals of the American Medical Association, the American boards and the American College of Surgeons for survey and approval of these facilities for residency-type training precisely as is done by these organizations in civilian hospitals. The American College of Physicians also exercises jurisdiction, but indirectly, in such affairs.

Quite frankly, our interest in providing training in the specialties for the officers of the Medical Corps while still on duty is greater than that for the so-called rehabilitation, especially by short courses, for officers after their discharge from service, although all of these proposals undoubtedly have merit. Equally frankly, we are pleased to take advantage of the fact that there are many outstanding clinicians and teachers now serving in the reserve Medical Corps, and it is fully recognized that this has offered an unparalleled opportunity to initiate this advanced teaching program with their help, especially for the benefit of the "regulars" who must later carry it on. We are also greatly interested in the progress of our reserve officers, who cannot fail to profit from our program pending their return to civilian residencies or practice. Thus the Navy residency program may be viewed as anticipating and lessening the expected demand from naval officers for

postwar training by supplying this in so many instances prior to release from active duty.

There has been some misunderstanding of our program. For example, specialty services in naval hospitals are not termed residencies, and junior medical officers assigned to such duties are not to be known as residents. The training while on duty is of the residency type and conforms to these standards, so that junior ward officers on duty in formally approved services may have time so spent accredited to them before the American boards and the American colleges. Opportunities for such assignments are limited in number, and war needs for young medical officers are still pressing.

On nearing completion of a tour of sea duty, and rotation back to the United States, a medical officer may make request to the Bureau of Medicine and Surgery, through his commanding officer, for assignment in a specialty in a naval hospital. Each such request is given close consideration by a board sitting for this purpose. If a young officer's request is justified by some substantial degree of previous special residency training or proved ability so that he can be used to the direct advantage of the patients and is thus already primed to absorb such training, he is likely to find himself so assigned as vacancies occur. Older officers, especially those fully qualified in a specialty and certified by their boards, are finding themselves appropriately assigned, more and more, for work and for teaching in their specialties. This is, obviously, to the advantage of the patients, and these officers are likewise extremely important in this educational program.

Again quite frankly, we cannot undertake during wartime to begin advanced training in a specialty for officers who have had no such training except in limited numbers of instances. Nevertheless it is important that intensive training be afforded especially to young officers of the regular Medical Corps, who will become the leaders and "key men" later in conducting the medical services of naval hospitals in the long postwar period for which provision must definitely be made. It is suggested, incidentally, that these men should profitably have only part of their residency-type training in naval hospitals, with the idea that later when we are no longer at war arrangements may be made by the Navy through affiliations for the remainder of their residency training to be obtained in civilian medical centers.

These points about residency-type training in naval hospitals have been outlined for two purposes. One of these is to show that its full scope is not limited to this one feature of rehabilitation of medical officers returning to civilian practice.

The other purpose is to reiterate and to reemphasize that it is, nevertheless, a distinct contribution to any such program. Many reserve officers are being provided with outstanding opportunities to resume their interrupted careers in training for a specialty, even while still in naval service; others, fully qualified as specialists, are finding "rehabilitation" and at the same time making important contributions to the Medical Corps, both to our younger medical officers and to our patients, while still on duty.

There seems to be one critical comment worth making on the educational plans for returning physician veterans. This is that the program has been consistently and almost exclusively directed toward veterans returning to civilian life.

1. McIntire, Ross T.: Internships and Residency-Type Training in United States Naval Hospitals, *J. A. M. A.* 128:264 (May 26) 1945.

Long after the end of this war it will be necessary to maintain a large standing army and navy with their medical officers. There is no good reason why these short "refresher" courses, or longer and more highly specialized courses, partial or complete residencies, and other educational plans for returning veterans should not also be available to and freely utilized by the officers remaining in regular service. In fact, our naval hospital residencies are not expected, in many instances, to offer a complete residency training; it is hoped and planned in the future to have our officers develop themselves further through broadening civilian contacts, and these proposed courses and residency facilities now being planned in such profusion should, properly, be open to men still in military service as well as to those returning home to practice civilian medicine.

Our point of view of the postwar medical educational problem envisions this "refresher" or rehabilitation plan developing into a permanent program of broad scope open to veterans in the reserve corps and to medical officers in the regular corps of the Army and Navy alike. We expect that our residency training program will lead to qualification of officers of the regular Medical Corps of the Navy for certification by the boards and fellowship in the colleges and will likewise qualify them for membership and fellowship in the various national special societies. The Medical Corps of the Navy recognizes fully the advantages that have come from the drawing in of reserve officers from civilian life, and it does not wish to lose these contacts.

In other words, everything possible should be sought to develop all officers of the Medical Corps of the Navy and to effect a closer liaison in peacetime between military and civilian medical practice and practitioners than may have existed heretofore.

It is my belief also that our ambition to provide such opportunities for advanced medical training both in and out of the specialties with development of personal attainments and national recognition offers a great inducement for medical officers, now serving for patriotic reasons, to make a permanent career of naval service.

ARMY REFRESHER COURSES

Lieutenant Colonel Harold C. Lueth, M. C., A. U. S.
Office of the Surgeon General

The Army has taken definite steps for assisting medical officers in getting refresher work in hospital training while they are still in the military service. Early this year steps were taken so that officers assigned to field, tactical and administrative positions would be given an opportunity to get a twelve week refresher course in one of the large named general hospitals in this country. Before the defeat of Germany all medical officers who returned from overseas assignments had the chance to apply for such training. At present many officers returning from overseas are applying for refresher training. A postcard application Form WD AGO 8-94 filled out at reception stations made it possible for returnees except those in redeployed units to apply almost as soon as they arrived in the United States.

Assignment to refresher courses has been limited to officers who volunteered for this work and who were previously assigned to command, administrative or semiprofessional positions for one year or more. Applications are received and processed by the Personnel Service, Office of the Surgeon General. Preference was given to officers who returned from overseas,

though those serving in the continental United States were not excluded. It is the present policy to assign not more than six officers to any one service, and no hospital will have more than twelve students at any one time. During the last four months more than 170 officers have been assigned to refresher courses.

Refresher training courses were in several main fields, as medicine, surgery and laboratory work. Courses in medicine and surgery followed broad schedules that had been developed in the Training Division of the Office of the Surgeon General. For example, at Tilton General Hospital special schedules have been evolved to fit the needs of the students and the available teaching material. They included two hours of actual contact and work with the patient. Ward work at which a complete history is obtained and a careful physical examination is made constitutes a specimen of the type of instruction in internal medicine. Courses in surgery include careful attention to operating room procedures and to preoperative and postoperative care. Administration of fluids and the treatment of shock, control of pain, treatment of fractures and use of penicillin, sulfonamides and other means of modern therapy are some of the main subjects taught. In medicine emphasis is placed on new diagnostic procedures, treatment of tropical diseases and other recent advances in treatment. Student officers in medicine are rotated between the section of general medicine, cardiology, gastroenterology, neuropsychiatry, allergy, communicable diseases and dermatology. Surgical refresher courses included the allied specialties of orthopedic, genitourinary and septic surgery and when available anesthesia, eye, ear, nose and throat, neurologic and thoracic surgery. An hour clinical conference is usually held in the morning before lunch, during which some special subject is discussed in detail by a chief of service, section or branch. In the afternoon an opportunity is given men to follow the chiefs of services in their ward rounds. An applicatory or on the job method of training is afforded to all students. Some hospitals have special x-ray conferences, clinical pathology and the other staff meetings. All schedules have a clinical pathologic conference at least once a week. Attendance at boards to determine the disposition of patients either for retirement, discharge for medical reasons or return to duty is optional and not a required part of the training. The abundance of clinical material in the large general hospitals, the presence of a qualified professional staff, who serve as instructors, and the availability of medical libraries make such courses very desirable educational methods of instruction.

Similar courses in laboratory work are offered to laboratory officers who have been assigned for the past year or more to administrative or command duties. The resources of Service Command laboratories are utilized and men are given an opportunity to study all phases of laboratory procedure, including bacteriology, parasitology, biochemistry and clinical pathology.

Considerable time and thought have been given the matter of refresher training to medical officers in Europe. Basic medical and surgical refresher training is being given in a number of cities in Europe. Medical officers awaiting transportation to the United States may apply for these courses. It has been reported that more than eight hundred officers are currently enrolled in the basic courses of medicine and surgery. Advanced courses of instruction are open to fewer but more highly trained medical officers. There are courses in anesthesiology, radiology, physical therapy, cardiology and

ophthalmology. Applicants must have completed at least one year or more of training after completing their internship in the special field in which further instruction is desired. Medical officers assigned to general hospitals as ward officers in these fields, on request, may be given intensive training for two months. Training of this type probably will be acceptable to the American specialty boards as a partial fulfillment of some of their requirements. With these restrictions it is evident that two month courses are not designed to produce qualified specialists, but they should be recognized as a supplementary method of training.

In a number of island bases there have been established basic medical courses designed to help the general practitioner. They include instruction in new methods of diagnosis, treatment, laboratory procedures and some work in anesthesiology, radiology and physical medicine. In the Army many of the special features of medical practice are referred to specialists, whereas in civilian general practice the doctor himself frequently is required to assume some of this work himself. This is especially true for laboratory work, anesthesiology and eye, ear, nose and throat work. General practitioners will benefit most from these courses.

Medical and surgical consultants of the European Theater have been most helpful in selecting qualified teachers to give both the basic and the advanced courses of instruction. Courses are well attended, give excellent training and are enthusiastically accepted by the student officers. In Paris, Edinburgh, Glasgow, London and Oxford, existing medical schools and civilian faculties have been utilized to help give these courses.

At the named general hospitals in the United States the chiefs of medicine and surgery are largely responsible for the instructional work. In some service commands the consultants are called on to give an occasional lecture or clinical demonstration. The facilities of the Wartime Graduate Medical Meetings are also useful in supplementary instructional work at the general hospitals. Excellent clinical pathologic conferences have been arranged at several general hospitals. Medical officers have been very enthusiastic about this type of refresher training and have expressed great satisfaction in being allowed to get such work. Through these means it is believed that the Army is doing much toward assisting medical officers in regaining whatever professional skills they might have lost as a result of pure military assignments.

FORTY-FIFTH ANNUAL REPORT ON MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

Victor Johnson, Ph.D., M.D.

Secretary, Council on Medical Education and Hospitals of the American Medical Association

In this forty-fifth annual compilation of information and statistics on medical education in the United States and Canada are included discussions of the military programs in medical schools, the supply of incoming medical students and the changing status of the accelerated program.

In addition there are included the calendars of the medical schools and data on enrolments, graduates, pre-medical education, licensure, internships, fees, continuation courses and specialty boards. Medical schools are described and recent educational developments discussed.

The Educational Number of THE JOURNAL provides essential material of great value to military and government agencies, medical schools, physicians, medical educators, hospital officials, students, interns, residents and those concerned with specialty certification and graduate and postgraduate medical education.

In the wartime days of multiple demands on every one's time and energy, it has been particularly gratifying to the Council and to THE JOURNAL to receive the wholehearted cooperation of all concerned with supplying the information compiled in this Educational Number. Military and government officials and officers of medical schools and other institutions have faithfully provided the Council not only with the material in this issue but with many other records throughout the year. They have generously assisted the Council staff in its inspections and surveys. For these services, sincere thanks are due not only from the Council and THE JOURNAL but also from every one who finds this publication useful.

THE SUPPLY OF MEDICAL STUDENTS

With the cessation of hostilities and the probable discontinuation of induction into the armed forces in the near future, every effort must be directed toward a resumption of the training of qualified premedical stu-

dents in adequate numbers. During the past year there have been virtually no able bodied male students in this field. Even after demobilization is complete, we shall probably need about 30,000 more physicians than before the war, primarily because of the requirements of the Veterans Administration (about 15,000) but also because of the needs of the peacetime Navy (about 5,000) and the Army plus possibly a compulsory universal military training program (about 10,000). This estimate disregards extra physicians required to provide replacements for casualties among medical officers, medical assistance to liberated countries and the more complete and extensive medical care demanded in this country.

Even if admissions, enrolments and graduations from our medical schools should continue at the present levels, only about half of this need would be met, since 40,000 students enrolling would receive the M.D. degree in the period 1942 to 1948 and 24,000 physicians will have died during that time. Thus, under the most favorable conditions only about 16,000 additional physicians will be available after the war to do the work of 30,000.

From now until at least 1947, medical school freshmen must be women, or men who were physically disqualified, under or over the draft age or veterans. Because people in these categories are limited in numbers, those admitted to our medical schools in the next year or two will be appreciably reduced in numbers or in quality.

The termination of the war earlier than every one anticipated was more than fortunate for numerous reasons; yet considerable damage has already resulted in medical education. There will probably be a lag for the better part of a year before the numbers and quality of men in premedical studies will reach the prewar levels.

MEDICAL SCHOOL CALENDARS

Before the war practically all medical schools admitted a freshman class each fall and graduated a class each spring, with one academic session per calendar year. Educational data could be presented annually without confusion arising as to which class was being discussed. This regularity is no longer the case. Schools commenced the accelerated program at different times, and

Therefore it is necessary to identify which session is being described in this Educational Number and relate it to sessions described in preceding Educational Numbers. In the 1943 Educational Number most of the data presented applied to the "session preceding the first class entering in 1943." Most of the information presented in 1944 applied to the succeeding session, "the first session commencing in 1943."

TABLE 1.—Admission and Graduation Calendars of Medical Schools in the United States

SCHOOL	Sessions for Which Data Are Given in This Educational Number				Dates of Next Two Entering Classes		Dates of Next Two Graduating Classes	
	Freshman Session Began	Date of First Graduation	Date of Second Graduation					
University of Arkansas School of Medicine.....	1- 2-45	12-18-44	.....	10- 1-45	10- 1-46	9-24-45	6-24-46	
University of California Medical School.....	3- 1-45	10-22-44	6-23-45	10-29-45	↑	2-23-46	10-19-46	
College of Medical Evangelists.....	12-31-44	6- 1-44	3-45	10- 5-45	9-30-46	10- 1-45	6-46	
University of Southern California School of Medicine.....	10-30-44	3- 1-44	2- 1-45	8- 6-45	↑	1- 1-46	1-47	
Stanford University School of Medicine.....	1- 8-45	10-13-44	6-17-45	10- 8-45	10- 7-46	4- 5-46	4-47	
University of Colorado School of Medicine.....	10- 2-44	9-19-44	6-20-45	7- 2-45	↑	3-19-46	↑	
Yale University (Connecticut).....	9-25-44	9-16-44	6-16-45	9-24-45	9-26-46	3-20-46	12-18-46	
Georgetown University (District of Columbia).....	10- 8-44	9-17-44	6-23-45	9-10-45	9-16-46	3-31-46	1-15-47	
George Washington University.....	9-18-44	9-19-44	6-45	9-17-45	9-16-46	2-22-46	11-11-46	
Howard University College of Medicine.....	12-28-44	12-22-44	.....	9-29-45	9-30-46	9- 7-45	6- 7-46	
Emory University School of Medicine (Georgia).....	10- 2-44	9-16-44	6-16-45	9-24-45	9-23-46	3-19-46	12-18-46	
University of Georgia School of Medicine.....	9-27-44	9-11-44	6-11-45	9-27-45	9-25-46	3-25-46	3-23-47	
Loyola University (Illinois).....	10- 2-44	9-23-44	6-23-45	10- 1-45	10- 1-46	4-20-46	2- 1-47	
Northwestern University Medical School.....	9-27-44	9-30-44	6-13-45*	10- 1-45	10- 1-46	3-21-46	12-47	
University of Chicago, The School of Medicine.....	9-23-44	9- 8-44	6-15-45*	9-19-45	6-20-46	3-46	12-17	
University of Illinois College of Medicine.....	1- 2-45	12-15-44	.....	10- 1-45	10- 1-46	9-14-45	6-21-46	
Indiana University School of Medicine.....	12-28-44	4-23-44	12-21-44	9- 3-45	9-46	4-46	↑	
State University of Iowa College of Medicine.....	10- 2-44	9-24-44	6-16-45	9-24-45	9-24-46	3-24-46	12-21-46	
University of Kansas School of Medicine.....	10-30-44	10-29-44	6-24-45	9-17-45	9-16-46	3- 1-46	12-15-46	
University of Louisville.....	9-27-44	9- 8-44	6-15-45	7-11-45	4-17-46	3-22-46	12-14-46	
Louisiana State University.....	9-27-44	9- 6-44	6-13-45	9-13-45	9-46	3-13-46	12-46	
Tulane University School of Medicine.....	12- 1-44	10-14-44	.....	9- 1-45	9- 1-46	5-15-46	2-15-47	
Johns Hopkins University.....	9-25-44	8-18-44	6- 7-45	9-10-45	9-16-46	3-19-46	12-23-46	
University of Maryland.....	10-17-44	9-29-44	6-22-45	9-19-45	9-18-46	3-22-46	12-26-46	
Boston University (Massachusetts).....	10- 5-44	9-22-44	6-22-45	9-21-45	9-46	3-22-46	12-20-46	
Harvard Medical School.....	10- 2-44	9-25-44	6-23-45	9-24-45	9-23-46	3-23-46	12-20-46	
Tufts College Medical School.....	10- 2-44	9-24-44	6- 2-45	9-17-45	9-46	3-46	12-46	
University of Michigan Medical School.....	10-30-44	7-29-44	.....	10-29-45	10-28-46	9-15-45	10-12-46	
.....	10- 2-44	9-28-44	6-23-45	7- 2-45	4- 1-46	3-23-46	12-46	
.....	10- 2-44	8-24-44	6-15-45	7- 2-45	4- 1-46	3-21-46	12-46	
.....	8-28-44	9-21-44	6-14-45	6-29-45	9-46	2-28-46	↑	
Washington University School of Medicine.....	10- 5-44	9-12-44	6-23-45	9-27-45	9-26-46	3-23-46	12-21-46	
Creighton University (Nebraska).....	9-28-44	9-22-44	6- 2-45	9-28-45	9-28-46	3-16-46	12-20-46	
University of Nebraska College of Medicine.....	10- 2-44	9-23-44	6-16-45	9-20-45	9-46	3-23-46	12-21-46	
Albany Medical College (New York).....	10- 2-44	9-23-44	6-16-45	7- 2-45	9-30-46	3-23-46	12-21-46	
Long Island College of.....	10- 2-44	9-28-44	6-28-45	9-24-45	9-23-46	3-23-46	12-21-46	
University of Buffalo School of.....	1- 2-45	9-26-44	6-23-45	10- 1-45	9-30-46	6-22-46	3-22-47	
Columbia University College of.....	10- 5-44	9-28-44	6-28-45	10- 4-45	9-12-46	3-23-46	12-46	
Cornell University Medical College.....	9-28-44	9-26-44	6-26-45	10- 1-45	10- 1-46	4- 2-46	12-46	
New York Medical College.....	10- 2-44	9-28-44	6-13-45	9-17-45	9-15-46	6-46	↑	
New York University College of Medicine.....	10- 9-44	9-28-44	6-16-45	10- 1-45	10- 1-46	3-28-46	12-30-46	
University of Rochester School of Medicine.....	10- 2-44	9-23-44	6-16-45	10- 1-45	10- 1-46	3-23-46	12-14-46	
Syracuse University College of Medicine.....	1- 2-45	9-24-44	6-24-45	10- 1-45	10- 1-46	6-23-46	3-47	
Duke University School of Medicine (N. Carolina).....	10- 2-44	9-23-44	6- 8-45	9-26-45	9-25-46	3-23-46	3-26-47	
Bowman Gray School of Medicine.....	9-27-44	9-25-44	6-17-45	9-26-45	10- 8-45	11-25-46	2-22-46	11- 9-46
University of Cincinnati.....	9- 5-44	9-25-44	6- 8-45	9-17-45	9-26-46	3-15-46	1- 4-47	
Western Reserve University.....	9-28-44	9- 1-44	6-22-45	10- 2-45	9-46	3-15-46	↑	
Ohio State University College of.....	10- 3-44	9-15-44	6-15-45	7- 2-45	8-19-46	3-22-46	12-20-46	
University of Oklahoma School of Medicine.....	10- 2-44	9-21-44	6-22-45	7- 2-45	7- 1-46	3-22-46	12-20-46	
University of Oregon Medical School.....	10- 2-44	9-14-44	6-14-45	10- 1-45	↑	3-14-46	↑	
University of Pennsylvania (Pennsylvania).....	10- 9-44	9-22-44	6-22-45	10- 1-45	↑	5- 5-46	↑	
University of Pennsylvania School of Medicine.....	10- 2-44	9-14-44	6-21-45	7- 2-45	9-18-46	3-21-46	12-19-46	
University of Pennsylvania School of Medicine.....	10- 2-44	9-23-44	6-18-45	9-24-45	9-23-46	4-46	12-46	
.....	9- 1-44	.....	1-10-45	9-10-45	9- 1-46	1-10-46	6- 1-47	
Woman's Medical College of.....	10- 2-44	9-29-44	6-16-45	10- 1-45	9-30-46	4-46	12-21-46	
University of Pittsburgh School of.....	10- 2-44	9-16-44	6-16-45	9-27-45	9-26-46	3- 9-46	↑	
Medical College of the State of.....	1- 1-45	9-18-44†	6-45‡	9-45	12-45x	9-24-45	12-15x	
University of Tennessee College.....	12-27-44	12-17-44	.....	9-27-45	7-46	9-16-45	7- 1-46	
Meharry Medical College.....	9-18-44	9-11-44	6-11-45	6-18-45	9-16-46	3-15-46	12- 7-46	
Vanderbilt University School of Medicine.....	1- 8-45	12-18-44	.....	10- 1-45	10- 1-46	9- 3-45	6-24-46	
Southwestern Medical College (Texas).....	11-20-44	11-13-44	.....	9- 3-45	9- 3-46	3-25-46	↑	
Baylor University College of Medicine.....	6-28-44	6-24-44	6- 2-45	9-13-45	11- 1-46	3- 9-46	↑	
University of Texas School of Medicine.....	9-13-44	9- 6-44	6- 5-45	9-12-45	↑	3-46	↑	
University of Utah School of.....	9-25-44	9-13-44	6-20-45	7- 5-45	4-15-46	4- 3-46	12-23-46	
University of Vermont.....	9-23-44	9-14-44	6-23-45	7- 6-45	4- 1-46	3-20-46	12-15-46	
University of Virginia.....	10- 4-44	9-23-44	6-16-45	10- 1-45	9-26-46	3-23-46	12-21-46	
.....	1- 1-45	9-23-44	6-26-45	9-24-45	9-24-46	5-25-46	3- 1-47	
Marquette University School of Medicine.....	5- 7-45	9-27-44	.....	6-21-46	9-47	3- 1-46	11- 3-46	

† Not yet determined. ‡ Also June 1944. * Also December 1944 and March 1945.
‡ Also June and December 1944. § Also March 1945. x Also March and June 1946.

other local conditions varied so that admission and graduation dates are distributed throughout the year, as shown in tables 1, 2 and 3. Even within a given school the various classes (freshman to senior) may have different dates for the beginning and ending of the academic year; this will become increasingly true as more schools return to annual admissions while still accelerating.

Most of the material presented in the current issue applies to that session which for most schools began in September or October of 1944 and terminated in June 1945. This session will henceforth be referred to as the 1944-1945 session, even though this academic year commenced early in 1945 in a few schools. Since the publication of the 1944 Educational Number and up to June 30, 1945 all medical schools have had two gradu-

ating classes, except ten schools (Arkansas, Howard, Illinois, Tulane, Michigan, Woman's Medical, Meharry, Southwestern, Baylor and Marquette) in the United States and all but four (Manitoba, McGill, Montreal and Laval) in Canada. The opening and graduation dates which identify the sessions for which data are presented in the current issue are given for each school in tables 1, 2 and 3.

These tables also present the dates of the next two entering freshman classes as well as the next two graduation dates, except in a few instances in which schools give the date for one graduating class. The admission dates given indicate that a return to annual admissions henceforth is now planned in all medical and basic science schools in the United States except for six schools (Louisville, Wayne, Minnesota, Meharry, Vermont and Virginia) still planning to continue the

graduate students next in March 1946, although there will be graduates every month except November 1945 in this twelve month period. This table will be particularly valuable to internship hospitals by giving the numbers of graduates from the various schools and the times they will become available for internships. These figures are recapitulated in table 5, which also shows the number of schools admitting new freshman classes during each month of the ensuing twelve months.

By June 30, 1945 all medical schools in the United States except ten and all but four in Canada had completed a cycle of four graduating classes in three calendar years. During these three years, to June 30, 1945 there have been 20,662 graduates in the United States. By comparison there were 15,535 graduates in the three immediately preceding prewar years to June 30, 1942. This represents the graduation of an extra 5,127 stu-

TABLE 2.—Admission and Graduation Calendars of Medical Schools in Canada

SCHOOL	Session for Which Data Are Given in This Educational Number			Dates of Next Two Entering Classes		Dates of Next Two Graduating Classes	
	Freshman Session Began	Date of First Graduation	Date of Second Graduation				
University of Alberta (Canada).....	9-28-44	5-17-44	1- 6-45	9-17-45	9-16-46	1-46	9-31-46
University of Manitoba Faculty of Medicine.....	9-26-44	.....	2-14-45	9-45	9-14-46	10-31-45	5-46
Dalhousie University Faculty of Medicine.....	9-12-44	5-16-44	5-15-45	9-12-45	9-11-46	5-13-47	†
Queen's University Faculty of Medicine.....	9-25-44	5- 4-44	2-15-45	10- 1-45	9-23-46	2-15-46	5-19-47
University of Western Ontario Medical School.....	9-25-44	5-15-44	6-15-45	9-24-45	9-23-46	3-20-46	6- 7-47
University of Toronto Faculty of Medicine.....	9-26-44	5- 5-44	2-16-45	9-25-45	9-24-46	2-15-46	†
McGill University Faculty of Medicine.....	9- 6-44	7-31-44	.....	9- 5-45	9- 4-46	10- 6-45	5-15-47
University of Montreal Faculty of Medicine.....	9-18-44	7-31-44	.....	9-15-45	9-15-46	9-45	3-47
Laval University Faculty of Medicine.....	9-14-44	6-30-44	.....	9-13-45	9-10-46	6-20-46	7- 1-47
University of Saskatchewan School of Medical Sciences.....	10-10-44	.....	.....	10- 1-45	10-46	.....	.....

† Not yet determined.

TABLE 3.—Admission Calendars of Schools of the Basic Medical Sciences in the United States

SCHOOL	Session for Which Data Are Given in This Educational Number		Dates of Next Two Entering Classes for Freshmen	
	Freshman Session Began			
University of Alabama School of Medicine.....	9- 4-44		10- 8-45	10- 7-46
University of Mississippi School of Medicine.....	1-29-45		9-25-45	9-24-46
University of Missouri School of Medicine.....	9-16-44		9-22-45	9-22-46
Dartmouth Medical School (New Hampshire).....	3- 5-45		11- 5-45*	†
University of North Carolina School of Medicine.....	9-18-44		9-17-45	9-16-46
University of North Dakota School of Medicine.....	1- 2-45		9-24-45	9-23-46
University of South Dakota School of Medicine.....	9-11-44		9-17-45	9-16-46
West Virginia University School of Medicine.....	9-25-44		9-24-45	9-23-46

* Tentative.

† Not yet determined.

more frequent admissions and seven schools (California, Southern California, Hahnemann, Jefferson, Colorado, Utah and Dartmouth) which have not yet determined their calendars. It is probable that some of these institutions will decide to return to annual admissions before the 1946 class enters. Tennessee will continue to admit students quarterly.

All Canadian schools have returned to annual admissions.

THE ACCELERATED PROGRAM

Even though admissions are annual, acceleration will be continued for upper classes containing military student personnel, at least for the present. Therefore graduations will occur every nine months as long as acceleration continues in upper classes which entered school at nine month intervals. All Canadian schools have commenced to decelerate, and in some of them this adjustment has been completed for all classes.

The distribution of graduates throughout the next year is given by schools in table 4. Most schools will

dents in the past three years. This contribution of medical schools to the successful prosecution of the war is immeasurable, coming at a time when faculties were depleted in numbers and the demands on the time and energy of those remaining were excessive. Five thousand extra physicians can provide medical care for 100,000 hospitalized veterans, 1,000,000 soldiers or sailors or 4,000,000 civilians. However, the recent policies of the national authorities pertaining to pre-medical students will more than offset this net gain in the next few years.

During the past three years there has been a fairly general agreement that the accelerated program conducted during that time has been educationally undesirable. However, it is important to remember that factors other than acceleration itself have operated to the detriment of the medical educational program. Important among these have been the necessity for continuous teaching by most instructors, and the shortage of instructors.

These two difficulties will now be partially corrected. With annual admissions, even though acceleration is continued, the teaching load of the staff is reduced. If a school is on the quarter system accelerating and admitting a new class every October there will be no freshmen in school during the summer quarter, no sophomores in the spring, no juniors in the winter and no seniors in the autumn. It follows that a faculty

factors which have operated in our medical school programs. An uncritical urge to return to the "good old days" of the traditional calendar should be avoided. Certainly medical schools should oppose the peacetime compulsions by law or licensure regulations preventing even the most competent students from completing their work in three years, by requiring a specified time to elapse before completion of the medical work.

TABLE 4.—Estimated Number of Graduates of Medical Colleges, July 1, 1945 to June 30, 1946

	1945						1946					
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
University of Arkansas.....	65	..	..	..	..	..	..	..	..	61
College of Medical Evangelists (California).....	85	..	..	4	..	..	4	..	..
Stanford University.....	61	..	..
University of California.....	74	..	..	..	..
University of Southern California.....	63	..	..	..	..	..
University of Colorado.....	55	..	..	..
Yale University (Connecticut).....	60	..	..	..
George Washington University (District of Columbia).....	83	..	..	..	..
Georgetown University.....	85	..	..	..
Howard University.....	68
Emory University (Georgia).....	58	..	..	..	..	..	65	..	..	..
University of Georgia.....	69	..	..	..
Loyola University (Illinois).....	70	..	..
Northwestern University.....	17	..	..	4	..	137	..	..	..	..
University of Chicago School of Medicine.....	3	..	..	1	..	53	..	..	..	1
University of Illinois.....	180	..	..	3	..	..	..	..	..	175
Indiana University.....	..	101	..	..	..	..	..	..	..	82	..	..
State University of Iowa.....	1	..	..	..	..	..	86	..	..	..
University of Kansas.....	75	..	..	..
University of Louisville (Kentucky).....	91	..	..	..
Louisiana State University.....	71	..	..	..
Tulane University.....	..	136	..	..	..	..	..	..	..	..	128	..
Johns Hopkins University (Maryland).....	76	..	..	..
University of Maryland.....	98	..	..	..
Boston University (Massachusetts).....	63	..	..	..
Harvard Medical School.....	140	..	..	..
Tufts College Medical School.....	104	..	..	..
University of Michigan.....	138	..	..	..	..	..	..	..	..	..
Wayne University.....	56	..	..	..
University of Minnesota.....	2	..	..	120	..	..	..
St. Louis University (Missouri).....	124	..	..	..	..
Washington University.....	94	..	..	..
Creighton University (Nebraska).....	59	..	..	..
University of Nebraska.....	75	..	..	..
Albany Medical College (New York).....	46	..	..	..
Columbia University.....	114	..	..	..
Cornell University.....	80	..	..
Long Island College of Medicine.....	103	..	..	..
New York Medical College.....	96
New York University.....	133	..	..	..
Syracuse University.....	47
University of Buffalo.....	80
University of	66	..	..	..
Duke University.....	1	..	..	..	..	..	72	..	..	..
Bowman Gray.....	7	..	..	..	..	..	41	..	..	2
Ohio State University.....	77	..	..	..
University of Cincinnati.....	78	..	..	..	..
Western Reserve University.....	82	..	..	..
University of Oklahoma.....	70	..	..	..
University of Oregon.....	68	..	..	..
University of	120	..	..	..
University of	155	..
University of	118	..	..	..
University of	135	..	..
University of	78	..	..
University of	37	..	..	..	..	..
University of	43	..	..	..
University of
University of	64	..	..	..	..	..	..	..	..	..
University of	41	..	..	26	..	..	33	..	..	38
Vanderbilt University.....	39	..	..	..	..	..	..	..	51	..	..	..
Baylor University, Texas.....
Southwestern Medical College.....	48	..	..	..	..	..	80	..	..	37
University of Texas.....	38	..	..	..
University of Utah.....	37	..	..
University of Vermont.....	90	..	..	..
University of	66	..	..	..
University of	86	..	..	..
University of	80	..	..	..	..	..	..	..	..	..	74	..
Totals.....	119	237	623	85	0	36	104	259	3,363	547	237	607

member who teaches only freshmen will have no teaching duties in the summer. One who teaches only sophomores will be free from teaching in the spring, and so on. In addition, the prospects seem good for the return from military duty of a significant number of key teachers in the next few months.

It would be highly desirable to continue the experiment of medical school acceleration under these somewhat more favorable conditions. In attempting to assess the educational desirability of some acceleration it is necessary to evaluate independently the various

It seems probable that some schools will continue the accelerated program in modified form with annual vacation periods somewhat intermediate between the too long peacetime three to four months and the too short wartime intermissions.

It appears that all the licensure difficulties introduced by the accelerated program have been appropriately adjusted, at least so far as the work in the medical school itself is concerned, for the duration of the emergency. Unfortunately, some of the states have indicated an immediate return to prewar regulations when the

emergency is over. In some instances this will mean that even the most highly qualified students will be prevented by law from completing their medical studies in less than a stipulated minimum number of months. Whether or not some degree of acceleration is educationally desirable, no state law should require every

TABLE 5.—Distribution of Admission Dates by Schools and Estimated Number of Graduates for the Months July 1945 Through June 1946 in the United States; Schools of the Basic Medical Sciences Are Not Included

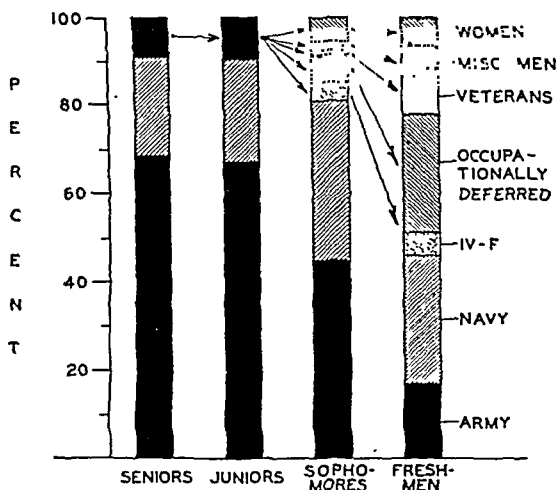
	Number of New Freshman Classes Entering	Number of Graduates (Estimated)
1945		
July.....	10	119
August.....	1	237
September.....	32	623
October.....	22	85
November.....	..	..
December.....	..	36
1946		
January.....	..	104
February.....	..	359
March.....	..	3,363
April.....	5	547
May.....	..	357
June.....	1	607
Total.....		6,437

student to take an annual vacation of sharply defined duration.

The relationship of licensure to the "acceleration" of the 9-9-9 internship and residency program is further discussed on page 52.

THE MILITARY AND CIVILIAN STATUS OF MEDICAL STUDENTS

The military status of medical students in the United States is shown, by schools, in table 6. Nearly 80 per cent of all medical students are in the Army or Navy programs. The distribution of students in military and civilian categories by classes is shown in table 7 and in the chart. There has been a decided change in the composition of medical classes in the years since the



Percentage distribution of students in military and civilian categories by classes, 1944-1945.

military programs commenced in our medical schools. In the senior and junior 1944-1945 classes over 90 per cent of the students are in Army or Navy programs. In the sophomore class this percentage just exceeds 80. The freshman class shows a sharp decrease in military students. Over half of them are in a civilian

status. In this class there are 5.3 per cent of physically disqualified males, 7.2 per cent of women, 8.6 per cent of veterans and 26.2 per cent of occupationally deferred men. This large number of deferred men resulted from a special but temporary concession of the Selective Service System. Army students now in A. S. T. premedical work will be available for one class in 1945 in each medical school, and Navy V-12 men will also be assigned to 1945 entering classes. However, the medical schools estimate a reduction in the 1945-1946 entering freshman class. In 1946 medical schools must obtain their students from sources which supplied only about one fourth of the 1944-1945 freshmen. One of two consequences is inevitable: There will be too few applicants to provide a full freshman class or some schools will admit inferior applicants.

There already is evidence of the latter. Certain schools have already admitted some men with very questionable qualifications for the study and practice of medicine. Despite a postwar need for more physicians than were required before the war, the admission of incompetent men or women to our schools cannot be tolerated, since these people will be the doctors of tomorrow. The Council on Medical Education and Hospitals of the American Medical Association will be especially concerned with the quality of freshmen admitted to our schools in the next few years.

PREMEDICAL EDUCATION

The premedical curriculums of the Army Specialized Training and the Navy V-12 programs are acceptable to all schools holding contracts for Army and Navy medical students. These programs also meet the minimum admission requirements formulated by the Council on Medical Education and Hospitals of the American Medical Association and by those states whose licensure laws include specific premedical requirements.

For civilian applicants, most schools state their 1946 admission requirements in academic years or semester hours. In tables 8 and 9 (pages 46, 47 and 48) these are given for each medical and basic science school in the United States and Canada. The trend toward the former prewar requirements continues. Compared with thirty-nine schools in 1945, there are fifty-six schools requiring more than two years of college preparation for students entering in 1946. There are three schools (two Canadian) requiring a degree or four years of college, fifty-three schools requiring about three years, and thirty asking about two years. One Canadian school admits students after one year of premedical work.

The American Council on Education has received a grant of \$150,000 from the Carnegie Corporation of New York and the General Education Board for the study of various wartime accelerated and other special educational programs to determine whether certain features of such plans appear to warrant permanent inclusion in our educational armamentarium. It is hoped that the premedical A. S. T. and Navy V-12 programs will be included in this study. It would be particularly important to know the relative performance in the first year of medical school by these military students as compared with those who took their premedical work in nonaccelerated programs either during or prior to the war. There seems to be a general impression among medical school faculties that students entering now are inferior to those entering before the war, but there are few objective data and the results of premedical acceleration are not clearly differentiated from

those of the medical years or from other undesirable features of the wartime medical school program. If the data could be obtained, it would also be important to know whether significant numbers of qualified men have recently been enabled to study premedicine and medicine because of the government subsidization of

past, it would seem to be axiomatic that the ability of a man or woman to pay for a medical education should not be a determining factor in the selection of the student for such study.

An issue of some moment has been raised by the plans of the American Council on Education and other

TABLE 6.—Military and Civilian Status of Medical Students in the United States by Schools, 1944-1945

	A.S.T.P.	V-12	Army Re- serves (Inac- tive)	Navy Re- serves (Inac- tive)	Veter- ans	IV-F	Occu- pation- ally De- ferred	Under 18	Other Men	Women	Total
University of Alabama.....	30	44	1	..	1	4	27	..	..	7	114
University of Arkansas.....	121	80	..	..	4	12	33	..	..	10	260
University of California.....	102	93	..	..	..	..	..	1	6	23	226
College of Medical Evangelists.....	191	19	7	..	..	16	99	..	72	18	371
University of Southern California.....	126	75	..	1	4	5	34	..	15	9	254
Stanford University.....	78	93	7	5	3	7	21	..	..	18	240
University of Colorado.....	115	33	1	..	7	16	32	..	..	13	237
Yale University (Connecticut).....	112	87	6	..	8	3	14	..	1	19	250
Georgetown University (District of Columbia).....	155	126	..	1	16	2	66	..	1	..	367
Harvard Medical School.....	132	100	6	1	10	2	45	1	1	18	316
University of Illinois.....	157	..	14	..	9	5	71	..	2	15	273
University of Georgia.....	108	93	6	..	..	8	30	..	2	6	248
Loyola University (Illinois).....	143	68	..	..	3	10	49	..	..	12	253
Northwestern University.....	139	80	10	..	10	12	53	..	10	19	313
University of Chicago, The School of Medicine.....	280	166	9	2	13	17	2	..	83	15	654
University of Illinois.....	109	89	8	..	9	10	..	3	13	11	252
Indiana University.....	355	172	3	..	9	44	27	1	7	46	665
State University of Iowa.....	224	90	..	..	10	25	18	1	10	19	397
Louisiana State University.....	167	98	1	..	7	11	7	..	2	14	307
Tulane University of Louisiana.....	124	93	17	..	3	10	25	..	3	21	302
Johns Hopkins University (Maryland).....	218	80	3	..	20	7	21	1	4	11	365
University of Maryland.....	202	202	9	2	8	4	39	8	3	28	325
Boston University (Massachusetts).....	125	104	4	..	12	14	37	2	22	16	514
Harvard Medical School.....	190	108	0	1	4	6	33	..	2	23	309
Tufts College Medical School.....	139	64	3	..	20	5	6	..	3	22	375
Creighton University (Nebraska).....	234	190	12	1	11	4	65	..	..	11	248
University of Nebraska.....	190	148	5	1	20	6	22	..	8	18	525
Dartmouth Medical School (New Hampshire).....	215	186	24	2	16	7	71	..	..	12	410
Albany Medical College (New York).....	120	63	8	2	17	7	19	..	..	42	589
Long Island College of Medicine.....	221	138	3	..	5	17	45	..	..	23	452
University of Buffalo.....	24	17	..	..	3	2	9	..	..	6	57
Columbia University.....	21	32	2	..	2	5	1	..	6	6	77
Cornell.....	277	143	21	1	14	10	62	..	5	..	536
New York.....	173	102	9	1	8	5	41	..	5	23	367
New York.....	123	64	8	..	4	6	24	..	7	11	247
Syracuse University.....	180	82	9	1	8	15	25	..	10	10	350
Dartmouth Medical School (New Hampshire).....	8	27	..	..	1	1	15	1	..	..	47
Albany Medical College (New York).....	77	51	..	..	5	9	20	..	2	20	184
Long Island College of Medicine.....	228	101	7	..	10	7	49	1	3	20	417
University of Buffalo.....	188	60	4	1	7	34	9	..	2	14	319
Columbia University.....	208	148	2	..	11	10	62	..	5	27	463
Cornell.....	161	93	3	..	7	4	26	..	2	19	317
New York.....	177	108	7	2	13	15	71	..	43	43	431
New York.....	255	122	7	3	21	7	62	..	1	35	631
University of Rochester.....	118	81	4	..	13	2	19	..	7	14	258
Syracuse University.....	107	62	1	1	2	7	7	..	2	10	199
University of North Carolina.....	12	47	1	..	..	5	30	..	..	4	90
Duke University.....	110	123	5	3	6	7	29	..	2	13	298
Bowman Gray School of Medicine.....	85	52	1	..	3	6	37	..	..	7	191
University of North Dakota.....	23	15	..	..	2	2	5	..	2	..	61
University of Cincinnati (Ohio).....	175	66	2	..	13	23	13	..	12	23	326
Western Reserve University.....	196	72	7	..	12	5	32	..	..	13	337
Ohio State University.....	169	62	2	..	12	8	34	..	8	16	311
University of Oklahoma.....	168	76	3	..	1	3	17	..	8	11	287
University.....	143	71	6	..	7	8	26	..	1	15	292
Hahnemann.....	280	137	8	..	30	8	75	..	1	38	577
Jefferson.....	317	172	..	..	20	14	74	..	..	..	607
Temple University.....	233	139	1	6	..	..	..	..	84	31	496
University of Pennsylvania.....	231	159	14	..	14	..	..	..	70	19	527
Woman's Medical College.....	..	..	..	..	..	..	..	..	..	162	162
University of Pittsburgh.....	171	68	9	..	20	2	..	..	22	21	323
Medical College of South Carolina.....	104	54	3	1	8	7	23	..	..	3	198
University of South Dakota.....	17	20	..	..	..	1	9	..	..	1	48
University of Tennessee.....	266	112	1	..	6	11	84	..	..	15	495
Meharry Medical College.....	152	..	3	..	6	14	29	..	3	10	235
Vanderbilt University.....	100	..	..	..	2	5	26	..	3	8	199
Southwestern Medical College (Texas).....	89	50	4	1	3	15	13	5	11	14	205
Baylor University.....	83	95	..	..	6	16	27	1	21	8	257
University of Texas.....	167	123	..	..	1	23	..	..	38	27	390
University of Utah.....	80	37	1	..	1	11	26	..	..	2	159
University of Vermont.....	96	25	..	..	7	1	11	..	..	9	149
University of Virginia.....	108	92	2	..	14	11	25	1	3	9	265
Medical College of Virginia.....	135	128	3	..	11	9	27	..	2	23	334
West Virginia University.....	11	17	..	..	1	5	17	..	..	4	55
University of Wisconsin.....	119	99	2	..	1	19	14	2	5	26	294
Marquette University.....	143	111	3	..	9	40	37	..	..	23	244
Totals.....	11,329	6,658	353	42	631	733	2,251	30	631	1,532	24,928

education in wartime. Several bills now pending in Congress, and the Vannevar Bush report to the President, propose federal scholarships for medical students in the belief that significant numbers of superior men and women are prevented from obtaining a medical education in normal times for financial reasons. Whether or not this has actually been the case in the

organizations, collaborating with the Armed Forces Institute, in which it is proposed to award high school and even college credits to students on the basis of examinations rather than course credits. These plans appear to be well conceived and fully recognize that written examinations cannot measure laboratory performance. It is planned to award credits through

examinations for nonlaboratory courses and for the didactic material in science courses.

Such a program is sound at any time, given adequate comprehensive examinations. It is particularly desirable now, when many veterans should commence academic work at a level commensurate with knowledge and ability rather than at the point dictated by formal course credit.

The awarding of high school credits on the basis of these examinations is entirely in accordance with principles, policies and regulations of the Council. Furthermore, this procedure should not lead to future licensure difficulties, since those states whose laws or practices include high school requirements provide for an alternative "equivalent" of high school work in each instance. Presumably the examinations sponsored by the American Council on Education would constitute such equivalents.

But there is some doubt about the applicability of these examinations as a substitute for premedical nonlaboratory college work under existing regulations. The Council on Medical Education and Hospitals has this problem now under consideration. There should result a common agreement by the Council, the Association of American Medical Colleges and the various state medical licensing boards on this question, so that men and women—particularly veterans—will not be com-

be surveyed for possible inclusion on the Council's list of approved four year schools when senior instruction is under way.

In Washington State, legislation has passed for the establishment of schools of medicine and dentistry under the Board of Regents of the University of Washington, to be located on the university campus in Seattle. There are appropriations of \$450,000 for operation until March 31, 1947 and of \$3,750,000 for construction of the plant, including a hospital. The University of Washington has had several medical basic science departments in its graduate school for some time, which can serve as a nucleus for the new institution. Conferences with the school authorities have been held by the secretaries of the Council on Medical Education and Hospitals of the American Medical Association and of the Association of American Medical Colleges. Definite steps toward consummation of the development are awaiting the appointment of a dean.

Other states now operating schools of basic medical sciences (Mississippi, Missouri, North Carolina, North Dakota, South Dakota and West Virginia) are contemplating expansions to the four year status and have at least authorized surveys of the problem, some of which have been completed. South Carolina, which now has an approved four year school at Charleston, appropriated \$25,000 to survey medical care in the state and prepare plans for an enlargement of the existing four year medical school and construction of a hospital. Florida, with no medical school at present, has provided \$25,000 to conduct a survey into the costs of operating a medical school.

Puerto Rico is projecting a medical school to be operated under the direction of the University of Puerto Rico. Until this institution can be built and put into operation, Puerto Rico has provided funds for scholarships for each of 50 students in each of the next four years, to be awarded to successful applicants to medical schools in this country. Almost all medical schools have indicated a willingness to consider Puerto Rican applicants, with the clear understanding that there is no advance commitment to admit such applicants.

CONSIDERATIONS IN ESTABLISHING A MEDICAL SCHOOL

Unfortunately, some of the current proposals for establishing new medical schools are ill conceived and rest on a failure to understand certain well recognized principles which must guide the thinking about such projects. Some of these considerations, which would seem to be axiomatic, but too often disregarded, are as follows:

1. There is no justification for the establishment of a medical school to meet such an acute temporary emergency as the absence of physicians on military duty.

2. Any overall increased present or postwar need for additional physicians occasioned by the war can be provided by existing approved schools. There is no justification for establishing new medical schools for this purpose. Furthermore, the normal annual number of graduates from existing schools is adequate for the peacetime needs of the country, granted distribution is equitable.

3. The maldistribution of physicians as between the states or between urban centers and rural areas is a problem to be attacked primarily by other means than the production of more doctors in a given state; the rate of production and the distribution of doctors in this country are independent.

TABLE 7.—*Military Status of Medical Students in the United States by Classes, 1944-1945*

	Army	Navy	IV-F	Occup. Defer.	Veter- ans	Un- der 18	Other Men	Women	Total
Freshmen.....	1,125	1,889	347	1,706	558	29	399	470	6,523
Sophomores.....	2,725	2,170	200	384	40	..	120	340	5,979
Juniors.....	3,843	1,820	122	84	21	1	41	268	5,700
Seniors.....	3,999	1,321	69	77	15	..	71	274	5,820
Totals.....	11,692	6,700	738	2,251	634	30	631	1,352	21,028

pelled to study formally what they already have mastered. At the same time there must be a full recognition of the fact that an unwarranted leniency in evaluating the qualifications of an applicant for medical school would do no service to the applicant, the medical school or the public.

NEW MEDICAL SCHOOLS

The Medical College of Alabama is not listed among the complete medical schools, because this Educational Number presents data for the period prior to the commencement of junior work in Birmingham. Therefore the school is still listed with the basic science institutions (table 9, page 48) as the University of Alabama School of Medicine under the deanship of Dr. Stuart Graves. The expansion plans of this school appear to be well conceived and sound. Outstanding leadership has been secured for the Birmingham project in the person of Dr. Roy Kracke, formerly of Emory University. Ample clinical facilities under complete control of the school have been secured: the college holds the deeds to the Hillman Hospital and the Jefferson Hospital with about 1,000 beds, almost all of which are for service cases. Funds and land adjacent to the hospital have been secured for the construction of a basic science building, and the budgetary provisions seem to be adequate at least to commence operations. On recommendation of the Council and of the Association of American Medical Colleges, the school has been awarded contracts by the Army and the Navy for third year instruction, which will have begun by the time this issue of THE JOURNAL is published. The school will

TABLE 8.—Approved Medical Schools in the United States and Canada

1944 Graduates Not Reported in 1944 Educational Number and 1945 Graduates to June 30, 1945†										Executive Officer
Name and Location of School	1946 Premedical Requirement by Years#	Students by Classes, 1944-1945					Totals			
		1st Year	2d Year	3d Year	4th Year	5th Year or Intern Year				
ARKANSAS										
1 University of Arkansas School of Medicine, Little Rock.....	60 sem. hrs.	75	65	61	65	..	266	63x	Byron L. Robinson, M.D., Dean.....	1
CALIFORNIA										
2 University of California Medical School, Berkeley-San Francisco.....	3	72	71	69	84	..	296	123	Francis Scott Smyth, M.D., Dean.....	2
3 College of Medical Evangelists, Loma Linda-Los Angeles.....	3	96	89	92	94	73†	371	150	Newton G. Evans, M.D., Dean, Loma Linda; W. F. Norwood, Ph.D., Associate Dean, Los Angeles.....	3
4 University of Southern California School of Medicine, Los Angeles.....	90 sem. hrs.	65	62	65	62	54†	254	108	Burriel O. Raulston, M.D., Dean.....	4
5 Stanford University School of Medicine, Stanford University-San Francisco.....	3	61	58	60	61	59†	210	119	Loren Roscoe Chandler, M.D., Dean.....	5
COLORADO										
6 University of Colorado School of Medicine, Denver.....	3	69	57	56	55	..	237	112	Ward Darley, M.D., Acting Dean.....	6
CONNECTICUT										
7 Yale University School of Medicine, New Haven.....	3	63	65	60	62	..	250	107	Francis G. Blake, M.D., Dean.....	7
DISTRICT OF COLUMBIA										
8 Georgetown University School of Medicine, Washington.....	3	103	92	85	87	..	367	152	David V. McCauley, S.J., Ph.D., Dean.....	8
9 George Washington University School of Medicine, Washington.....	2	85	75	83	73	..	316	148	Walter A. Bloedorn, M.D., Dean.....	9
10 Howard University College of Medicine, Washington.....	60 sem. hrs.	77	70	68	58	..	273	68x	John W. Lawlath, M.D., Dean.....	10
GEORGIA										
11 Emory University School of Medicine, Atlanta.....	90 sem. hrs.	68	59	65	56	..	248	116	Eugene A. Stead Jr., M.D., Acting Dean.....	11
12 University of Georgia School of Medicine, Augusta.....	90 sem. hrs.	78	75	67	65	..	285	124	G. Lombard Kelly, M.D., Dean.....	12
ILLINOIS										
13 Loyola University School of Medicine, Chicago.....	60 sem. hrs.	83	80	70	80	..	313	161	Italo F. Volini, M.D., Dean.....	13
14 Northwestern University Medical School, Chicago.....	85 sem. hrs.	135	131	149	169	138†	584	296	J. Roscoe Miller, M.D., Dean.....	14
15 University of Chicago, The School of Medicine.....	80 sem. hrs.	65	66	55	66	..	252	117	A. C. Bachmeyer, M.D., Asso. Dean, Biology Div.; F. J. Mullin, Ph.D., Assistant Dean of Students.....	15
16 University of Illinois College of Medicine, Chicago.....	88 sem. hrs.	146	157	179	183	..	605	167x	Raymond B. Allen, M.D., Dean.....	16
INDIANA										
17 Indiana University School of Medicine, Bloomington-Indianapolis.....	2	166	165	85	161	..	397	226	Willis D. Gatch, M.D., Dean.....	17
IOWA										
18 State University of Iowa College of Medicine, Iowa City.....	3	79	79	66	83	..	307	153	Ewen Murelison MacEwen, M.D., Dean.....	18
KANSAS										
19 University of Kansas School of Medicine, Lawrence-Kansas City.....	3	73	74	75	80	..	302	164	Harry R. Wahl, M.D., Dean.....	19
KENTUCKY										
20 University of Louisville School of Medicine, Louisville.....	3 & Degree	103	83	91	88	..	365	177	John Walker Moore, M.D., Dean.....	20
LOUISIANA										
21 Louisiana State University School of Medicine, New Orleans.....	90 sem. hrs.	98	75	71	81	..	325	159	Wilbur C. Smith, M.D., Dean.....	21
22 Tulane University of Louisiana School of Medicine, New Orleans.....	90 sem. hrs.	123	122	129	140	..	514	131x	Hiram W. Kostmayer, M.D., Dean.....	22
MARYLAND										
23 Johns Hopkins University School of Medicine, Baltimore.....	2	77	75	77	80	..	309	155	Alan M. Chesney, M.D., Dean.....	23
24 University of Maryland School of Medicine and College of Phys. and Surg., Baltimore	2	96	90	101	88	..	375	182	Robert U. Patterson, M.D., Dean.....	24
MASSACHUSETTS										
25 Boston University School of Medicine, Boston.....	3	67	57	63	61	..	248	114	Charles F. Branch, M.D., Dean.....	25
26 Harvard Medical School, Boston.....	2	125	116	113	141	..	525	279	C. Sidney Burwell, M.D., Dean.....	26
27 Tufts College Medical School, Boston.....	4	107	163	162	98	..	410	200	Dwight O'Hara, M.D., Acting Dean.....	27
MICHIGAN										
28 University of Michigan Medical School, Ann Arbor.....	90 sem. hrs.	160	145	144	140	..	589	112x	A. C. Fursstenberg, M.D., Dean.....	28
29 Wayne University College of Medicine, Detroit.....	60 sem. hrs.	65	64	53	66	..	248	136	Hardy A. Kemp, M.D., Dean.....	29
MINNESOTA										
30 University of Minnesota Medical School, Minneapolis.....	3	100	111	116	122	128†	422	245	Harold S. Diehl, M.D., Dean.....	30
MISSOURI										
31 St. Louis University School of Medicine, St. Louis.....	60 sem. hrs.	138	138	124	126	..	536	236	Alphonse M. Schwitalla, S.J., Ph.D., Dean.....	31
32 Washington University School of Medicine, St. Louis.....	90 sem. hrs.	89	78	98	102	..	367	169	Philip A. Shaffer, Ph.D., Dean.....	32
NEBRASKA										
33 Creighton University School of Medicine, Omaha.....	69 sem. hrs.	74	56	58	59	..	217	118	Charles M. Wipshelm, M.D., Dean.....	33
34 University of Nebraska College of Medicine, Omaha.....	60 sem. hrs.	95	81	78	76	..	350	163	G. W. Mc Poynter, M.D., Dean.....	34

NEW YORK

53	Albany Medical College, Albany.....	3	52	46	46	40	184	79	R. S. Cunningham, M.D., Dean.....	33
56	Long Island College of Medicine, Brooklyn.....	3	111	100	103	40	417	109	Jean A. Curran, M.D., President and Dean.....	36
57	University of Buffalo School of Medicine, Buffalo.....	3	89	80	74	74	319	144	Edward W. Koch, M.D., Dean.....	37
58	Columbia University College of Physicians and Surgeons, New York.....	3	120	115	114	114	463	236	Joseph C. Rappleye, M.D., Dean.....	38
59	Cornell University Medical College, New York.....	3	81	81	81	81	317	164	Joseph C. Rappleye, Ph.D., Dean.....	39
60	New York Medical College, Flower and Fifth Avenue Hospitals, New York.....	3	127	117	95	94	431	183	J. A. W. Herrick, M.D., President and Dean.....	40
41	New York University College of Medicine, New York.....	2	155	120	132	126	633	233	Donald Sheridan, M.D., Acting Dean.....	41
42	University of Rochester School of Medicine and Dentistry, Rochester.....	2	63	62	62	62	238	124	George H. Whipple, M.D., Dean.....	42
43	Syracuse University College of Medicine, Syracuse.....	2	56	47	47	47	159	93	H. G. Weiskotten, M.D., Dean.....	43
NORTH CAROLINA										
44	Duke University School of Medicine, Durham.....	90 sem. hrs.	76	72	73	77	298	148	Wilbur C. Davison, M.D., Dean.....	44
45	Howman Gray School of Medicine of Wake Forest College, Winston-Salem.....	90 sem. hrs.	57	41	43	50	191	81	C. C. Carpenter, M.D., Dean.....	45
OHIO										
46	University of Cincinnati College of Medicine, Cincinnati.....	3	88	79	78	81	326	160	Stanley Dorst, M.D., Dean.....	46
47	Western Reserve University School of Medicine, Cleveland.....	3	86	82	82	87	337	160	Joseph T. Wear, M.D., Dean.....	47
48	Ohio State University College of Medicine, Columbus.....	3	85	80	73	73	311	144	Charles A. Dean, M.D., Dean.....	48
OKLAHOMA										
49	University of Oklahoma School of Medicine, Oklahoma City.....	3	77	68	70	72	237	128	Tom Lowry, M.D., Dean.....	49
OREGON										
50	University of Oregon Medical School, Portland.....	82 sem. hrs.	73	71	72	71	292	136	D. W. E. Balrd, M.D., Dean.....	50
PENNSYLVANIA										
51	Hahnemann Medical College and Hospital of Philadelphia.....	2	169	162	120	126	577	220	William G. Schmidt, Ph.D., Chrm., Fac. Exec. Com. 51	51
52	Jefferson Medical College of Philadelphia.....	2	152	146	135	134	607	239	William H. Perkins, M.D., Dean.....	52
53	Temple University School of Medicine, Philadelphia.....	90 sem. hrs.	135	110	123	123	315	237	William N. Parkinson, M.D., Dean.....	53
54	University of Pennsylvania School of Medicine, Philadelphia.....	3	123	124	133	133	527	263	William Pepper, M.D., Dean.....	54
55	Woman's Medical College of Pennsylvania, Philadelphia.....	3	84	88	88	89	322	128x	Marion Fay, Ph.D., Acting Dean.....	55
56	University of Pittsburgh School of Medicine, Pittsburgh.....	2	89	82	78	77	323	155	William S. McElroy, M.D., Dean.....	56
SOUTH CAROLINA										
57	Medical College of the State of South Carolina, Charleston.....	2	60	46	44	48	198	96	Kenneth M. Lynch, M.D., Dean.....	57
TENNESSEE										
58	University of Tennessee College of Medicine, Memphis.....	2	161	116	107	111	495	182	O. W. Hyman, Ph.D., Dean.....	58
59	Memphis Medical College, Nashville.....	2	67	62	60	64	253	59x	Murray G. Brown, M.D., Director of Medical Education; Michael J. Hunt, M.D., Dean.....	59
60	Vanderbilt University School of Medicine, Nashville.....	3 & Degree	49	46	49	55	199	107	Ernest W. Goodpasture, M.D., Dean.....	60
TEXAS										
61	Southwestern Medical College of the Southwestern Medical Foundation, Dallas.....	60 sem. hrs.	64	57	37	47	205	57x	Tinsley Harrison, M.D., Dean of Faculty; Donald Slaughter, M.D., Dean of Students.....	61
62	University of Texas School of Medicine, Galveston.....	90 sem. hrs.	102	87	89	111	389	205	Chauncey D. Lenke, Ph.D., Vice President and Dean 62	62
63	Baylor University College of Medicine, Houston.....	72 sem. hrs.	85	82	51	39	257	15x	Walter H. Moursund, M.D., Dean.....	63
UTAH										
64	University of Utah School of Medicine, Salt Lake City.....	3	42	39	39	38	158	73	C. E. McLennan, M.D., Chairman, Admin. Com. 64	64
VERMONT										
65	University of Vermont College of Medicine, Burlington.....	3	40	36	37	36	149	68	William Eustis Brown, M.D., Dean.....	65
VIRGINIA										
66	University of Virginia Department of Medicine, Charlottesville.....	3	73	59	68	65	265	141	Harvey E. Jordan, Ph.D., Dean.....	66
67	Medical College of Virginia, Richmond.....	3	89	74	91	93	338	170	J. P. Gray, M.D., Dean.....	67
WISCONSIN										
68	University of Wisconsin Medical School, Madison.....	2	70	72	74	72	288	128	W. J. Meek, Ph.D., Acting Dean.....	68
69	Marquette University School of Medicine, Milwaukee.....	3	96	99	85	86	366	84x	Eben J. Carey, M.D., Dean.....	69
CANADA										
70	University of Alberta Faculty of Medicine, Edmonton, Alta.....	3	37	32	*	21	169	70	Alan C. Rankin, M.D., Dean.....	70
71	University of Manitoba Faculty of Medicine, Winnipeg, Man.....	2	60	59	50	61	183	55x	A. T. Mathers, M.D., Dean.....	71
72	Dalhousie University Faculty of Medicine, Halifax, N. S.....	2	50	40	31	43†	121	75	H. G. Grant, M.D., Dean.....	72
73	Queen's University Faculty of Medicine, Kingston, Ont.....	1	48	46	31	46	224	83	G. Spencer Melvin, M.D., Dean.....	73
74	University of Toronto Faculty of Medicine, Toronto, Ont.....	2	51	46	37	37	204	65	G. E. Hall, M.D., Dean.....	74
75	University of Western Ontario Faculty of Medicine, London, Ont.....	2	149	124	*	130	657	245	W. E. Galle, M.D., Dean.....	75
76	McGill University Faculty of Medicine, Montreal, Que.....	3	108	105	*	101	314	92x	J. C. Menkings, M.D., Dean.....	76
77	University of Montreal Faculty of Medicine, Montreal, Que.....	Degree	121	108	*	78	307	47x	Edmond Dubé, M.D., Dean.....	77
78	Laval University Faculty of Medicine, Quebec, Que.....	Degree	135	98	106	70	409	37x	Charles Vézina, M.D., Dean.....	78
Totals.....			7,307	6,637	5,874	6,373	26,581xx	11,074		

These premedical requirements apply to civilian applicants in most instances. All schools will consider completion of the military premedical program, by male applicants on active duty, as fulfilling academic admission requirements.

- * One year (intern) enrollment not included in total column.
- † Sixth year enrollment; Queen's 4; Toronto 10.
- xx One R.M.C. class; figures of other schools are for two graduating classes.
- xx Includes 3.0 in the 5th and 6th years, Canadian schools.

4. Medical education is by far the most expensive form of professional training, requiring an initial outlay and subsequent annual budgets in the early years totaling millions of dollars and not tens or hundreds of thousands. A school whose resources include annual budgets of less than \$350,000, independent of the cost of maintenance of the hospital and outpatient departments, is unlikely to conduct a satisfactory program.

5. The operation of an acceptable four year medical school is far more expensive than the conduct of a basic science medical program.

6. The trend toward more full time clinical instructors is so general that any new school commencing with all or nearly all of its staff on a part time basis is already obsolete.

7. The possession of the M.D. degree and the successful practice of medicine do not, in themselves, indicate that a physician is qualified to teach medical students satisfactorily, even in clinical subjects. Volun-

able to capture a few spare student hours that others had somehow overlooked.

Drastic revisions along the following lines should be made in many institutions:

1. Reduction in scheduled hours in the basic sciences, especially lectures.

2. Provision for free time of students for reading, investigation or the pursuit of special interests. Stimulation of superior students to participate in research.

3. Reduction in the great mass of detail required of students by instructors, possessing no scientific, intellectual or utilitarian value.

4. A closer integration of the basic sciences with one another, in which department autonomy is relegated to its proper position of administrative convenience, and instruction is interdepartmental, emphasizing the human body in health and disease, avoiding the division of the body into its anatomy, its physiology, its pathology, and so on.

TABLE 9.—*Approved Schools of the Basic Medical Sciences in the United States and Canada*

Name and Location of School	1946 Promedical Requirement by Years [§]	Students by Classes, 1944-1945			Executive Officer
		1st Year	2d Year	Total	
ALABAMA					
1 University of Alabama School of Medicine, University (Tuscaloosa).....	96 sem. hrs.	60	54	114	Stuart Graves, M.D., Dean
MISSISSIPPI					
2 University of Mississippi School of Medicine, University.....	3	29	29	58	B. S. Guyton, M.D., Acting Dean
MISSOURI					
3 University of Missouri School of Medicine, Columbia.....	60 sem. hrs.	37	38	75	Dudley S. Conley, M.D., Dean
NEW HAMPSHIRE					
4 Dartmouth Medical School, Hanover.....	90 sem. hrs.	24	23	47	Rolf C. Syvertsen, M.D., Dean
NORTH CAROLINA					
5 University of North Carolina School of Medicine, Chapel Hill.....	96 sem. hrs.	52	47	99	W. Reece Berryhill, M.D., Dean
NORTH DAKOTA					
6 *University of North Dakota School of Medicine, Grand Forks.....	3	26	25	51	H. E. French, M.D., Dean
SOUTH DAKOTA					
7 *University of South Dakota School of Medical Sciences, Vermillion.....	90 sem. hrs.	26	22	48	Joseph C. Ohlmacher, M.D., Dean
WEST VIRGINIA					
8 West Virginia University School of Medicine, Morgantown.....	3	30	25	55	Edward J. Van Liere, M.D., Dean
CANADA					
9 University of Saskatchewan School of Medical Sciences, Saskatoon, Sask.	2	25	†	25	W. S. Lindsay, M.B., Dean

* On probation.

† Class will be enrolled in September 1945 under the deceleration program.

‡ Now operating clinical program at Birmingham; see page 45.

§ These premedical requirements apply to civilian applicants in most instances. All schools in the United States will consider completion of the military premedical program, by male applicants on active duty, as fulfilling academic admission requirements.

teer and part time teachers require special training and experience.

8. A hospital well equipped to provide medical care to the people or even satisfactory for internship or residency training is not thereby necessarily satisfactory as a medical school hospital.

9. Medical schools must be so located that there is an ample supply of patients of all kinds, on the one hand, and competent instructors, including specialists, on the other hand.

10. No medical school is worthy of the name which does not carry out some significant research, even though the primary aim of the school is the training of general practitioners.

A failure to observe these generalizations might lead to costly ventures without prospects of accomplishing the ends sought, however desirable those ends may be.

THE MEDICAL CURRICULUM

The present is an ideal time for a reconstruction of the curriculum, since medical education is now in a state of flux. Curricular changes in recent years have been negligible in many if not most medical schools, except for miscellaneous accretions from time to time, sometimes justifiable educationally but too often the consequence of aggressiveness by an instructor who was

5. Closer correlation of basic sciences with the clinical work, so that clinical material is used as a vitalizing aid in the teaching of the sciences, and these in turn are made more significant and useful in clinical medicine.

6. Reduction of didactic and classroom work in the clinical years to the one or two hours a day it warrants.

7. More complete dependence on the case method of clinical instruction, in which the student is an important member of a team solving the problems of diagnosis and therapy in patients studied individually but under adequate supervision by juniors in the wards and seniors in the outpatient departments.

8. A change in faculty attitude toward the clinical student, placing him and his work in a position of greater dignity, so that he does not consider a clinic as a class from 1 to 3 and the writing of his history as a homework assignment. He should be made to feel that he is a physician under supervision and not a schoolboy with classes from 9 to 5.

9. An emphasis on the unknown, and the challenge it presents, equal in importance to the memorizing of textbooks and lectures.

10. The development of research, seminars, discussions and courses in the social and economic aspects of medicine and the distribution of medical care.

Changes of this kind have been made in some areas by some schools. They should be incorporated, along with other reforms, into every curriculum.

APPROVED MEDICAL SCHOOLS

Medical and basic medical science schools in the United States and Canada approved by the Council on Medical Education and Hospitals of the American Medical Association are listed in tables 8 and 9 (pages 46, 47 and 48). These tables indicate the quantitative premedical requirements for civilians. The enrolment by classes, including students in a required fifth year of interning or research, and the total attendance, which does not include such fifth year students, apply to the academic session 1944-1945. For most schools this session commenced in September or October 1944 and terminated in June 1945. In other schools this class is still in session. The number of graduates in the past year to June 30, 1945 is also given. For all but ten schools in the United States and four in Canada (see pages 40 and 41 for names of schools) the figures are for two graduating classes, usually in the fall of 1944 and June of 1945. Figures for the sixth year enrolment in two Canadian schools are given in a footnote.

For each school the name of the dean or acting dean is given. In this column there have been fourteen changes in the past year, with new administrative officers at Colorado, Emory, Louisiana State, Wayne, Mississippi, Dartmouth, Western Reserve, Ohio, Vanderbilt, Utah, Vermont, Western Ontario, McGill and Montreal.

Two basic science schools, North and South Dakota, remain on probation for their two year program. Each of these schools is contemplating expansion to a four year status.

Each year the Council conducts as many surveys of already approved schools as it can. During the past year the findings at one of these, the Hahnemann Medical College in Philadelphia, were such as to place the school on probation. Similar action was taken by the Executive Council of the Association of American Medical Colleges.

A medical school is placed on probation when significant but correctable deficiencies are judged to exist in the educational program. Such an institution remains on the list of approved schools maintained by the Council, with its probationary status indicated by a footnote. Hospitals approved by the Council may appoint graduates of such a school as interns, residents or fellows, and all otherwise qualified students entering or attending a school on probation are considered acceptable to the Council, including for licensure purposes.

The Council will give every assistance to this school in its efforts to improve the educational program sufficiently to warrant a termination of the probation.

ENROLMENTS

Enrolment figures for the 1944-1945 session are given in tables 8 and 9 (pages 46, 47 and 48) and recapitulated in table 10. In the seventy-seven medical and basic science schools in the United States there were 24,028 students studying medicine (excluding students in a required fifth or intern year), which is a insignificant decrease of 638, or 2.6 per cent from the enrolment in the preceding session. The 1944-1945 total is slightly larger (about 2 per cent) than the enrolment (23,529) of the class reported in the 1944 Educational Number.

Enrolment totals for the Canadian schools are likely to be misleading, especially if attempts are made to com-

pare the enrolment figures of successive sessions. The low totals in the "preceding session" (table 10) are due to the deceleration process, which is well under way in Canadian schools. As a result, there have not been two full sessions in Canada during the time when there were two full sessions in the United States. The effects of deceleration in Canada are also indicated in the data on juniors in table 8.

There were 390 students in the fifth and sixth years in Canadian schools, which number is included in the "totals" column of table 8 but not in the "total" column of table 10. Intern students in a required fifth year during the 1944-1945 session numbered 606, in the schools of the United States (452) and Canada (154).

In schools offering the complete four years of work, the five schools in the United States with the highest enrolments were Illinois 665, Jefferson 607, Michigan 589, Northwestern 584 and Hahnemann 577. An additional five schools (Tulane, Harvard, St. Louis, New York University and Pennsylvania) had enrolments over 500. The three schools with the lowest enrolments were Woman's Medical College 162, Utah 158 and Vermont 149. Five other schools in the United States

TABLE 10.—Total Enrolments by Classes in Medical Schools of the United States and Canada for the 1944-1945 Session. Students in the intern year are not included

	Fresh- men	Sopho- mores	Juniors	Seniors	Total	Total Preceding Session
69 Medical Schools (U. S.)	6,239	5,716	5,700	5,826	23,481	24,011
8 Basic Science Schools (U. S.)	284	263	.....	.....	547	655
Total (U. S.)	6,523	5,979	5,700	5,826	24,028	24,666
9 Medical Schools (Canada)	759	658	174	547	2,138*	947†
1 Basic Science School (Canada)	25	.....	.....	.....	25	24
Total (Canada)	784	658	174	547	2,163*	971†
Total U. S. and Canada	7,307	6,637	5,874	6,373	26,191	25,637

* Does not include 390 in the 5th and 6th years; these are included in the "totals" column of table 8.

† Does not include 598 in the 5th and 6th years.

(Albany, Syracuse, Bowman Gray, South Carolina and Vanderbilt) had enrolments of less than 200. In Canada the highest enrolment occurred at Toronto with 657 students in its six year program, and the lowest at Alberta with 109 students in its five year course.

During the 1944-1945 session there were two basic science schools with more than 75 students enrolled; these were Alabama (114) and North Carolina (99). The lowest enrolment (in the United States) occurred at Dartmouth, with 24 freshmen and 23 sophomores.

Table 11 gives the number of students enrolled in the United States in the four classes and in internships when required for graduation during the past fifteen years.

During the two sessions conducted since that reported in the 1944 Educational Number there were 25,113 students (1944 second session) and 24,480 students (1944-1945) enrolled. Each of these figures is larger than the total for any preceding year since 1931 despite the fact that students in a required fifth internship year have decreased in numbers in recent years. Also in the past fifteen years the largest enrolment in any one class (freshman to senior) occurred in one or another of the last two sessions shown in table 11. There is no doubt that certain schools have enrolled numbers beyond those justified by their resources and facilities. The number of students in a required fifth internship year has remained practically unchanged during the past three academic sessions.

It should be noted that prior to 1942-1943 the totals shown in table 11 are somewhat higher than the sum of the figures in the various classes. This resulted from certain schools being unable to classify their students strictly into the conventional graded classes, freshman to senior.

TABLE 11.—Students in the United States by Years, Including the Intern Year When Required for Graduation, 1931-1945

	Preclinical		Clinical		Intern Year	Total
1930-1931.....	6,456	5,538	5,080	4,908	1,025	23,007
1931-1932.....	6,269	5,462	4,932	4,885	1,067	23,202
1932-1933.....	6,426	5,479	5,017	4,948	1,106	23,572
1933-1934.....	6,457	5,571	4,988	4,937	1,183	23,982
1934-1935.....	6,356	5,624	5,142	4,905	1,233	24,121
1935-1936.....	6,005	5,458	5,230	5,020	1,213	23,777
1936-1937.....	5,910	5,369	5,110	5,158	1,255	23,350
1937-1938.....	5,791	5,225	4,986	5,036	1,132	22,719
1938-1939.....	5,764	5,160	4,947	4,921	1,152	22,454
1939-1940.....	5,794	5,177	4,921	4,894	1,152	22,423
1940-1941.....	5,837	5,254	4,969	4,849	1,058	22,437
1941-1942.....	6,218	5,406	5,087	4,942	767	22,798
1942-1943.....	6,425	5,828	5,278	5,100	639	23,270
1943-1944.....	6,561	6,071	5,640	5,257	451	23,980
1944 (second session).....	6,648	6,140	6,084	5,794	447	25,113
1944-1945.....	6,523	5,979	5,700	5,826	452	24,480

GRADUATES

The last column of table 8 (pages 46 and 47) gives the 1944 graduates not included in the 1944 Educational Number plus those in 1945 to June 30. These figures are for two graduating classes, usually about September 1944 and June 1945, in all schools except ten in the United States (Arkansas, Howard, Illinois, Tulane, Michigan, Woman's Medical College, Meharry, Southwestern, Baylor and Marquette) and four in Canada (Manitoba, McGill, Montreal and Laval). Therefore, the total of 11,074 graduates in both countries is about double the number graduating in any previous year, because of the accelerated program. The 10,305 gradu-

TABLE 12.—Schools, Students and Graduates in the United States, 1905-1945

	Schools	Students *	Graduates
1905.....	160	26,147	5,696
1910.....	131	21,526	4,440
1915.....	96	14,891	5,536
1920.....	85	13,798	3,947
1921.....	83	14,466	5,183
1922.....	81	15,635	2,529
1923.....	80	16,900	3,120
1924.....	79	17,728	3,562
1925.....	80	18,500	3,974
1926.....	79	18,540	3,962
1927.....	80	19,662	4,035
1928.....	80	20,545	4,262
1929.....	76	20,878	4,446
1930.....	76	21,597	4,565
1931.....	76	21,982	4,735
1932.....	76	22,135	4,926
1933.....	77	22,466	4,895
1934.....	77	22,709	5,035
1935.....	77	22,888	5,101
1936.....	77	22,564	5,183
1937.....	77	22,095	5,377
1938.....	77	21,587	5,194
1939.....	77	21,302	5,089
1940.....	77	21,271	5,097
1941.....	77	21,379	5,275
1942.....	77	22,631	5,163
1943.....	76	22,631	5,223
1944.....	77	23,529	5,134
1944 (second session).....	77	24,696	5,169
1945 (to June 30).....	77	24,625	5,126

* Includes figures for schools of the basic medical sciences.

ates from schools in the United States are four times as many as those graduated in 1922. In that year the consequences of reduced wartime freshman enrolments became apparent, as will again be the case three years hence.

The total students and graduates per academic year in this country since 1905 are indicated in table 12. In this table the 10,305 graduates reported here are separated

into the two graduating classes since the Council's last report. For the "1944 second session" classes there were 5,169 graduates and for the "1945 to June 30" classes there were 5,136. Neither of these figures is significantly different from the number of graduates per academic session in the last decade. However, had all four year schools graduated two classes in the past year instead of only 59 out of 69, there would be a considerable increase in the final figure for graduates in table 12. The ten schools having only one graduating class ordinarily graduate about 736 students per session. This number represents approximately the number of additional graduates which will have been produced as a result of increased enrolments in the medical schools of this country, independently of acceleration. For further discussion of the effects of acceleration on the number of graduates see "The Accelerated Program," page 41.

TABLE 13.—Schools, Students and Graduates by States Excluding Intern Year Students

	Schools	Students	Graduates
Alabama.....	1	114	..
Arkansas.....	1	266	63
California.....	4	1,161	510
Colorado.....	1	237	112
Connecticut.....	1	250	107
District of Columbia.....	3	956	368
Georgia.....	2	533	240
Illinois.....	4	1,814	741
Indiana.....	1	397	226
Iowa.....	1	307	153
Kansas.....	1	302	164
Kentucky.....	1	365	177
Louisiana.....	2	829	290
Maryland.....	2	684	337
Massachusetts.....	3	1,183	593
Michigan.....	2	837	248
Minnesota.....	1	432	245
Mississippi.....	1	58	..
Missouri.....	3	978	435
Nebraska.....	2	577	281
New Hampshire.....	1	47	..
New York.....	9	3,124	1,465
North Carolina.....	3	588	229
North Dakota.....	1	51	..
Ohio.....	3	974	464
Oklahoma.....	1	287	128
Oregon.....	1	292	136
Pennsylvania.....	6	2,692	1,208
South Carolina.....	1	198	96
South Dakota.....	1	48	..
Tennessee.....	3	947	348
Texas.....	3	851	277
Utah.....	1	158	73
Vermont.....	1	149	68
Virginia.....	2	603	311
West Virginia.....	1	55	..
Wisconsin.....	2	634	212
Totals.....	77	24,025	10,305

The University of Illinois continues to graduate the largest number of students, with 167 reported for its one class. The three following schools are next, in order of numbers, each graduating two classes: Northwestern 296 (average 148 per class), Jefferson 289 (average 145) and Harvard 279 (average 140). The smallest numbers were graduated from Baylor 15, Woman's Medical College 29, Albany with 79 in two classes averaging 40, and Bowman Gray 81 in two classes averaging 41.

In the nine Canadian medical schools there were 769 graduates, with five of these schools graduating two classes. The greatest number of graduates was from Toronto, with 245 in two classes. The smallest number, 65 in two classes, received degrees from Western Ontario.

STUDENTS AND GRADUATES BY STATES

The seventy-seven medical and basic science schools in this country are located in thirty-six states and the District of Columbia. The numbers of schools, students and graduates in these states are shown in table 13.

Each of five states enrolled more than a thousand students in their schools and graduated (mainly in two classes) more than 500. In order, these states are New York, nine schools, 3,124 students, 1,465 graduates; Pennsylvania, six schools, 2,692 students, 1,208 graduates; Illinois, four schools, 1,814 students, 741 graduates; Massachusetts, three schools, 1,183 students, 593 graduates; California, four schools, 1,161 students, 510 graduates. The twenty-six schools in these five states account for 42 per cent of the entire student enrolment in this country and 44 per cent of the graduates.

Six of the states with basic science schools had no graduates, since there are no four year medical schools in those states. Four states with one school in each had fewer than 100 graduates: Arkansas 63 in one graduating class, Vermont 68 in two classes, Utah 73 in two classes and South Carolina 96 in two classes.

GEOGRAPHIC SOURCES OF FRESHMEN STUDENTS, 1944-1945

In table 14 is indicated the residence of students in the 1944-1945 freshman class of each medical and basic science school in the United States. The actual states in which the out of state students reside are not given, all students residing in states other than that in which their schools are located being grouped together in the column "other states." Included in the table are 6,523 freshmen in the schools of this country and 784 in Canadian institutions, or 7,307 in all. In the United States 46 per cent of all 1944-1945 freshmen came from elsewhere than the state in which they attend school. Almost all, or 2,899 of these 3,037 students, came from other states of the Union. A few (86) came from the territories and possessions of the United States, 13 were from Canada, and from foreign countries there were 39.

A listing of schools admitting more out of state residents than residents of the state in which the school is located would give a false impression of normal policies. Although freshmen are selected by committees of deans, there is little or no selection of specific students by specific schools, or schools by students, especially in the Army Specialized Training Program. As a result, several state schools normally limiting selections almost entirely to residents now find themselves with many out of state residents. No school in this country was without at least one nonresident freshman in this class.

Tulane enrolled the largest number of freshmen (11) from territories and possessions, and the College of Medical Evangelists admitted the most Canadians (8). Freshmen from foreign countries numbered 6 at Tulane and 6 at Michigan.

In the Canadian school freshmen classes there were 784 students, of whom 730, or about 93 per cent, were residents of Canada. In addition there were 30 freshmen from this country and 24 from foreign countries. McGill enrolled the largest number, 25 from the United States and 12 from foreign countries.

There are twelve states in the Union in which no medical or basic science schools are located. These are listed in table 15, which also gives the number of freshmen from each of these states enrolled in medical schools, as well as the number of schools they attended. There were 611 such freshmen, over 60 per cent of whom came from New Jersey and the state of Washington. From New Jersey there were 252 freshmen in forty-four schools. The greatest number, 31, were

TABLE 14.—Geographic Sources of Freshman Students,
1944-1945

	Home State	Other State	Territories & Possessions	Canada	Foreign	Total
University of Alabama.....	43	17	..	..	..	60
University of Arkansas.....	30	45	..	..	..	75
University of California.....	46	24	..	1	1	72
College of Medical Evangelists.....	22	57	4	8	5	96
University of Southern California.....	55	10	..	..	..	65
Stanford University.....	42	18	..	..	1	61
University of Colorado.....	47	21	1	..	..	69
Yale University (Connecticut).....	8	54	1	..	..	63
Georgetown University (Dist. of Col.)...	10	92	1	..	..	103
George Washington University.....	21	61	3	..	..	85
Howard University.....	13	62	1	..	1	77
Emory University (Georgia).....	34	34	..	..	..	68
University of Georgia.....	68	10	..	..	..	78
Loyola University (Illinois).....	43	40	..	..	..	83
Northwestern University.....	47	84	4	..	..	135
Univ. of Chicago, The School of Med.....	22	37	3	1	2	65
University of Illinois.....	65	80	..	..	1	146
Indiana University.....	43	63	..	..	..	106
State University of Iowa.....	65	14	..	..	..	79
University of Kansas.....	49	23	..	..	1	73
University of Louisville (Kentucky).....	46	55	2	..	..	103
Louisiana State University.....	64	33	1	..	..	98
Tulane University of Louisiana.....	18	88	11	..	6	123
Johns Hopkins University (Maryland)...	6	70	..	..	1	77
University of Maryland.....	48	46	2	..	..	96
Boston University (Massachusetts).....	34	32	1	..	..	67
Harvard Medical School.....	25	93	3	1	3	125
Tufts College Medical School.....	77	30	..	..	..	107
University of Michigan.....	89	60	5	..	6	160
Wayne University.....	43	16	1	..	..	65
University of Minnesota.....	92	8	..	..	..	100
University of Mississippi.....	10	19	..	..	..	29
University of Missouri.....	29	8	..	..	..	37
St. Louis University.....	29	105	3	..	1	138
Washington University.....	48	40	1	..	..	89
Creighton University (Nebraska).....	15	57	1	..	1	74
University of Nebraska.....	71	24	..	..	..	95
Dartmouth Med. School (New Hampshire)...	..	24	..	..	..	24
Albany Medical College (New York)...	36	16	..	..	..	52
Long Island College of Medicine.....	78	33	..	..	..	111
University of Buffalo.....	45	36	..	2	2	85
Columbia University.....	58	60	..	..	2	120
Cornell University.....	35	44	2	..	..	81
New York Medical College.....	86	41	..	..	..	127
New York University.....	102	52	1	..	..	155
University of Rochester.....	25	44	..	..	..	69
Syracuse University.....	27	27	1	..	1	56
University of North Carolina.....	44	8	..	..	..	52
Duke University.....	22	54	..	..	..	76
Bowman Gray School of Medicine.....	39	18	..	..	..	57
University of North Dakota.....	4	22	..	..	..	26
University of Cincinnati (Ohio).....	68	19	1	..	..	88
Western Reserve University.....	55	30	1	..	..	86
Ohio State University.....	78	7	..	..	..	85
University of Oklahoma.....	68	9	..	..	..	77
University of Oregon.....	45	33	..	..	..	78
Hahnemann Med. College (Pennsylvania)...	102	61	6	..	..	169
Jefferson Medical College.....	111	39	2	..	..	152
Temple University.....	70	55	9	..	1	135
University of Pennsylvania.....	88	47	..	..	..	135
Woman's Medical College.....	11	42	1	..	..	54
University of Pittsburgh.....	83	1	2	..	..	86
Medical College of South Carolina.....	52	8	..	..	..	60
University of South Dakota.....	13	13	..	..	..	26
University of Tennessee.....	73	84	2	..	2	161
Meharry Medical College.....	4	62	1	..	..	67
Vanderbilt University.....	19	30	..	..	..	49
Southwestern Medical College (Texas)...	31	33	..	..	..	64
Baylor University.....	61	23	1	..	..	85
University of Texas.....	97	5	..	..	..	102
University of Utah.....	33	9	..	..	..	42
University of Vermont.....	15	25	..	..	..	40
University of Virginia.....	52	21	..	..	..	73
Medical College of Virginia.....	56	23	..	..	1	80
West Virginia University.....	25	5	..	..	..	30
University of Wisconsin.....	29	41	..	..	..	70
Marquette University.....	24	65	7	..	..	96
University of Alberta (Canada).....	..	..	..	37	..	37
University of Manitoba.....	..	1	..	59	..	60
Dalhousie University.....	..	1	..	43	6	50
Queen's University.....	..	..	..	46	2	48
University of Western Ontario.....	..	..	..	51	..	51
University of Toronto.....	..	..	..	147	2	149
McGill University.....	..	25	..	71	12	108
University of Montreal.....	..	..	..	121	..	121
Laval University.....	..	3	..	131	1	135
University of Saskatchewan.....	..	..	..	24	1	25
Totals.....	3,486	2,929	86	743	63	7,307

in New York University. From Washington there were 122 in thirty-nine schools, with 23 attending Oregon. There were no freshmen from Nevada in the 1944-1945 class.

It is of interest to compare the number of medical students in 1944-1945 freshmen classes in this country

TABLE 15.—Enrolment of Freshmen Students from States in Which There Are No Medical Schools, 1944-1945

	Students Enrolled	Number of Schools	School with Greatest Number from State and Number of Students
Arizona.....	14	11	Southern California (3)
Delaware.....	10	7	George Washington (2); Cornell (2); Hahnemann (2)
Florida.....	87	31	Emory (22)
Idaho.....	34	21	Oregon (6)
Maine.....	24	14	Tufts (4); Rochester (4)
Montana.....	16	12	Northwestern (3)
Nevada.....	..	..	..
New Jersey.....	252	44	New York University (31)
New Mexico.....	8	5	Baylor (3)
Rhode Island.....	36	19	Univ. of Michigan (7)
Washington.....	122	39	Oregon (23)
Wyoming.....	8	6	Northwestern (2); Harvard (2)
Total.....	611		

per hundred thousand of population from the twelve states without medical schools and from the country at large. In the country at large there were just 5.0 freshmen enrolled per hundred thousand inhabitants, employing the 1940 census figures. Exactly the same ratio applies for the total freshman registration from these twelve states as a group and their population. New Jersey, without an approved medical school of its own, sent 6.0 men or women per hundred thousand of its population to approved medical schools elsewhere. Washington had the even higher ratio of 7.0 per hundred thousand. These figures would seem to indicate that there is no justification for the argument frequently advanced in some states that "we need a medical school in our state because our boys and girls cannot gain admission to out of state institutions." These figures suggest that these students have as great a chance for admission as do those students residing in a state which does have a medical school within its borders. Justification for developing a new medical school must rest on other grounds.

INTERNSHIPS REQUIRED BY SCHOOLS AND STATES

The medical schools requiring the internship for the M.D. degree are listed in table 16. Only six schools in the United States and four in Canada include this

TABLE 16.—Internship Required by Medical Schools

United States
College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Northwestern University Medical School
University of Minnesota Medical School
Duke University School of Medicine *
Canada
University of Alberta Faculty of Medicine
University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine

* Degree not withheld until internship completed.

requirement. There has been no change in this list in the past two years.

In the year 1944-1945 there were 452 students of schools in the United States and 154 students from Canadian institutions, a total of 606, reported as engaged

in this work in fulfilment of the internship requirement for the M.D. degree.

Although relatively few schools now require the internship for the M.D. degree, this is required for licensure by twenty-three states, the District of Columbia, Alaska, Hawaii and Puerto Rico. Table 17 lists these states and also indicates the relationship of this requirement to the wartime nine month internship. At least for the emergency period, eight states and Alaska will accept the shortened internship. Twelve states, the District of Columbia and Puerto Rico require an additional three months in a civilian hospital or military service and will withhold the license until this is completed. However, they will permit applicants for licensure to write the examination on completion of the nine month internship. In three states it is necessary to complete the full year of internship, three months of which may be in the military service, before becoming eligible for the licensure examination. Officers desiring licensure in these states (Illinois, New Hampshire and New Mexico) must seek furloughs to take the exami-

TABLE 17.—Relationship of the Nine Month Internship to Licensure in All States Requiring an Internship

Accepted as Fulfilling Internship Requirement	Additional Three Months in Civilian Hospital or Military Service Required	
	Will Give Examination at End of Nine Months	Will Not Give Examination Until Completion of Year's Service
Alaska	Alabama ¹	Illinois ²
Delaware	District of Columbia ¹	New Hampshire
Idaho	Iowa ¹	New Mexico
Michigan ¹	New Jersey ¹	
Montana ¹	North Dakota	
Nevada	Oklahoma ¹	
Pennsylvania ¹	Oregon ^{1,2}	
West Virginia	Puerto Rico	
Wyoming	Rhode Island ¹	
	South Dakota ^{1,2}	
	Utah ^{1,2}	
	Vermont ¹	
	Washington ¹	
	Wisconsin	

Hawaii, which requires an internship for licensure, has not reported on the relationship of this requirement to the shortened internship. Some states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants. 1. Will also give examination on completion of the medical course but withhold license until internship is completed. 2. Military medical service must be in a military hospital.

nations or delay the procedure until after discharge. Four states specifically stipulate that the three months of military service must be in a military hospital to be acceptable.

Some states require the internship of graduates from schools abroad and applicants for reciprocity or endorsement. The licensing boards of Illinois, Michigan, North Dakota, Pennsylvania and Washington require the internship to be a rotating service, while New Jersey recommends this type of service.

Some medical schools and licensing boards maintain their own list of hospitals acceptable for intern training, but the list of approved internships compiled by the Council on Medical Education and Hospitals is generally used. The Veterans Administration has indicated that all educational institutions included on the various approved lists of the Council on Medical Education and Hospitals of the American Medical Association, including medical schools and house officer hospitals, will be acceptable as institutions eligible for the training of veterans under the "G. I. Bill of Rights."

DISTRIBUTION BY SEX

Students in the 1944-1945 academic session and graduates during approximately one year, ending June 30, 1945, are classified according to sex in table 18

for all medical and basic science schools in the United States and Canada. The enrolment was 25,001 men and 1,580 women. Graduates totaled 10,513 men and 561 women. All but six of the eighty-seven schools reported

TABLE 18.—*Distribution by Sex in the United States and Canada, Classes of 1944-1945*

	Students		Graduates	
	Men	Women	Men	Women
University of Alabama.....	107	7	..	..
University of Arkansas.....	256	10	61	2
University of California.....	268	28	118	15
College of Medical Evangelists.....	353	18	141	9
University of Southern California.....	245	9	105	3
Stanford University.....	222	18	114	5
University of Colorado.....	224	13	104	8
Yale Un.....	231	19	99	8
Georgeto.....	367	..	152	..
George.....	298	18	136	12
Howard.....	258	15	65	3
Emory University (Georgia).....	242	6	116	..
University of Georgia.....	273	12	120	4
Loyola University (Illinois).....	294	19	153	8
Northwestern University.....	569	15	290	6
Univ. of Chicago, The School of Med.....	241	11	113	4
University of Illinois.....	619	46	159	8
Indiana University.....	378	29	222	4
State University of Iowa.....	293	14	141	12
University of Kansas.....	281	21	151	13
University of Louisville (Kentucky).....	354	11	174	3
Louisiana State University.....	297	28	149	10
Tulane University of Louisiana.....	498	16	124	7
Johns Hopkins University (Maryland).....	286	23	135	20
University of Maryland.....	353	22	171	11
Boston University (Massachusetts).....	237	11	105	9
Harvard Medical School.....	525	..	279	..
Tufts College Medical School.....	392	18	192	8
University of Michigan.....	547	42	105	7
Wayne University.....	236	12	130	6
University of Minnesota.....	429	23	231	14
University of Mississippi.....	55	3	..	..
University of Missouri.....	69	6	..	..
St. Louis University.....	536	..	236	..
Washington University.....	344	23	192	7
Creghton University (Nebraska).....	236	11	114	4
University of Nebraska.....	320	10	159	4
Dartmouth Med. School (New Hampshire).....	47	..	..	..
Albany Medical College (New York).....	164	20	70	9
Long Island College of Medicine.....	397	20	187	12
University of Buffalo.....	305	14	139	5
Columbia University.....	436	27	223	13
Cornell University.....	298	19	145	9
New York Medical College.....	391	43	158	25
New York University.....	498	35	230	23
University of Rochester.....	244	14	118	6
Syracuse University.....	189	10	89	4
University of North Carolina.....	95	4	..	..
Duke University.....	285	13	144	4
Bowman Gray School of Medicine.....	184	7	80	1
University of North Dakota.....	51	..	..	..
University of Cincinnati (Ohio).....	304	22	155	5
Western Reserve University.....	324	13	150	10
Ohio State University.....	295	16	139	5
University of Oklahoma.....	276	11	120	8
University of Oregon.....	274	18	135	1
Hahnemann Med. College (Pennsylvania).....	539	38	215	15
Jefferson Medical College.....	607	..	289	..
Temple University.....	465	31	221	16
University of Pennsylvania.....	508	19	258	10
Woman's Medical College.....	..	162	..	29
University of Pittsburgh.....	302	21	147	8
Medical College of South Carolina.....	195	3	94	2
University of South Dakota.....	47	1	..	..
University of Tennessee.....	480	15	176	6
Meharry Medical College.....	237	16	54	5
Vanderbilt.....	191	8	105	2
Southwe.....	191	14	54	3
Baylor.....	249	8	15	..
University of Texas.....	362	27	192	13
University of Utah.....	156	2	70	3
University of Vermont.....	140	9	64	4
University of Virginia.....	256	9	139	2
Medical College of Virginia.....	315	23	158	12
West Virginia University.....	51	4	..	..
University of Wisconsin.....	252	36	120	8
Marquette University.....	343	23	82	2
University of Alberta (Canada).....	97	12	64	6
University of Manitoba.....	166	17	49	6
Dalhousie University.....	116	5	73	2
Queen's University.....	212	12	81	2
University of Western Ontario.....	183	21	60	5
University of Toronto.....	560	97	230	15
McGill University.....	282	32	85	7
University of Montreal.....	291	16	45	2
Laval University.....	397	12	35	2
University of Saskatchewan.....	21	4	..	..
Totals	25,001	1,580	10,513	561

women students. Five of these have not admitted women in recent years: Georgetown, Harvard, St. Louis, Dartmouth and Jefferson. North Dakota, which reported no women in the 1944-1945 classes, has had

women students within the past few years. All Canadian schools had women students enrolled.

Women students in the United States numbered 1,352 as compared with 22,676 men. In Canada there were 228 women and 2,325 men students. In the one medical college for women only there were 162 students and 29 graduates. Nine other schools, including two in Canada (Illinois, Michigan, New York Medical, New York University, Hahnemann, Temple, Wisconsin, Toronto and McGill), had more than 30 women students.

There were 561 women graduates from seventy-two of the seventy-eight four year medical schools. Graduates numbered 514 women and 9,791 men in the United States. In Canada there were 47 women graduates and 722 men.

Table 19 shows the distribution of students and graduates in the United States and Canada classified by sex for a period of ten years—actually, eleven academic sessions, two of these having been completed by most schools in the past year. The current (1944-1945) enrolment of women, 1,580, exceeds that of any class in the last decade, although this increase is not yet apparent in the figures for women graduates, per

TABLE 19.—*Distribution by Sex in the United States and Canada, 1936-1945*

Year	Students		Graduates	
	Male	Female	Male	Female
1935-1936.....	24,219	1,254	5,388	268
1936-1937.....	23,787	1,244	5,624	261
1937-1938.....	23,234	1,207	5,439	252
1938-1939.....	22,919	1,238	5,290	285
1939-1940.....	22,903	1,291	5,430	273
1940-1941.....	22,853	1,308	5,527	310
1941-1942.....	23,551	1,333	5,397	305
1942-1943.....	24,183	1,317	5,450	271
1943-1944.....	25,113	1,379	5,390	267
1944 (Second session).....	24,859	1,242	5,385	282
1944-1945 (to June 30)....	25,001	1,580	5,128	279

academic session. Women graduates have not changed appreciably in numbers in the past ten years.

Table 20 gives the percentages of women medical students and graduates in the United States since 1905. For the second academic session reported in this issue, since the 1944 Educational Number, the percentage enrolment of women has risen to 5.6. This is a higher proportion of women enrolled in medical schools than at any other time in the last twenty years. The percentage of women graduates in the past year was equalled or exceeded several times in the past decade.

We may expect increases in the enrolment of women in the next entering classes, with the current limitations on the supply of qualified men. However, it is not apparent that there is a large reservoir of qualified women students interested in and prepared to study medicine. The ratio of women applicants to women accepted in medical schools has been about the same as the ratio for men. Should schools determine to admit a considerably larger proportion of women next year, they would probably be unable to do so without accepting students with qualifications inferior to those required in the past from either men or women.

LOAN FUNDS AND SCHOLARSHIPS

Since about 80 per cent of the students in medical schools are now being financed under the Army and Navy programs, the need for student loans and scholarships has been greatly reduced. At the present time needy and deserving civilian students can probably be

adequately provided for locally. In many instances university and college funds for these purposes have accumulated from lack of demand for them. Such funds should be carefully conserved, because of the likelihood that there will soon be a higher percentage of civilians in our medical schools. Since the accelerated program must be continued to fulfil Army and Navy agreements, financial hardships may be encountered by the increasing number of civilians.

Recently there have been several proposals that federal funds be made available for medical student scholarships. It would be preferable to have such aid made available as loans rather than as outright scholarships, since the practice of medicine is reasonably remunerative. Competent medical students should have sufficient confidence in themselves to be willing to borrow money for their education.

TABLE 20.—*Women in Medicine in the United States*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905.....	1,073	4.1	219	4.0
1910.....	907	4.0	116	2.6
1915.....	592	4.0	92	2.6
1920.....	818	5.8	122	4.0
1925.....	910	5.0	204	5.1
1926.....	985	5.0	212	5.4
1927.....	964	4.9	189	4.7
1928.....	929	4.5	207	4.9
1929.....	925	4.4	214	4.8
1930.....	955	4.4	204	4.5
1931.....	980	4.5	217	4.6
1932.....	955	4.3	208	4.2
1933.....	1,036	4.7	214	4.4
1934.....	1,020	4.5	211	4.2
1935.....	1,077	4.7	207	4.1
1936.....	1,133	5.0	246	4.7
1937.....	1,113	5.1	238	4.4
1938.....	1,161	5.4	237	4.6
1939.....	1,144	5.4	230	5.1
1940.....	1,145	5.4	253	5.0
1941.....	1,140	5.4	280	5.3
1942.....	1,104	5.3	279	5.4
1943.....	1,150	5.1	241	4.6
1944.....	1,176	5.0	230	4.7
1944 (Second session).....	1,141	4.6	252	4.9
1945 (to June 30).....	1,352	5.6	262	5.1

PART TIME, SPECIAL AND GRADUATE STUDENTS

Part time, special and graduate students are excluded in all of the foregoing tabulations and statistics. Special students include those carrying work in such fields as public health, physicians reviewing for specialty boards examinations and students preparing to become physical therapy or clinical laboratory technicians. Curriculums in these and other fields may involve medical courses.

During the 1944-1945 session there were 129 part time or special students and 140 graduate students enrolled in some of the medical courses in forty medical and basic science schools in this country and Canada. These numbers represent still further decreases below the figures of a year ago. The decreased enrolment of graduate students is another reflection of our national wartime policy of failing to provide for the training of scientists. In 1940-1941 there were 1,167 graduate students in our medical schools. Last year's 140 is only 12 per cent of this number. The Selective Service System and the Army and Navy have insured a deficiency in medical students, in quantity or quality, in the next few months or years. They have also provided for an even more prolonged deficiency in medical school teachers and investigators in the basic sciences.

GRADUATES WITH BACCALAUREATE DEGREES

At the present time no school in the United States requires a degree for admission, although one school (Tufts) requires four years of premedical work. In

Canada, Montreal and Laval require the degree. Two schools (Louisville and Vanderbilt) require the student to earn a bachelor's degree during the first year in medical school. Yet 79 per cent of the graduates from seventy-eight four year medical schools in

TABLE 21.—*Graduates with Baccalaureate Degrees*

	Graduates	Degrees
University of Arkansas.....	63	13
University of California.....	133	132
College of Medical Evangelists.....	150	87
University of Southern California.....	108	82
Stanford University.....	119	119
University of Colorado.....	112	104
Yale University (Connecticut).....	107	103
Georgetown University (Dist. of Columbia).....	152	137
George Washington University.....	148	109
Howard University.....	68	61
Emory University (Georgia).....	116	100
University of Georgia.....	124	106
Loyola University (Illinois).....	161	75
Northwestern University.....	296	290
University of Chicago, The School of Medicine.....	117	112
University of Illinois.....	167	144
Indiana University.....	226	189
State University of Iowa.....	153	116
University of Kansas.....	161	161
University of Louisville (Kentucky).....	177	110
Louisiana State University.....	159	96
Tulane University of Louisiana.....	131	96
Johns Hopkins University (Maryland).....	155	152
University of Maryland.....	182	131
Boston University (Massachusetts).....	114	103
Harvard Medical School.....	279	247
Tufts College Medical School.....	200	184
University of Michigan.....	112	82
Wayne University.....	136	134
University of Minnesota.....	245	245
St. Louis University (Missouri).....	236	177
Washington University.....	199	168
Creighton University (Nebraska).....	118	113
University of Nebraska.....	163	88
Albany Medical College (New York).....	79	67
Long Island College of Medicine.....	199	68
University of Buffalo.....	144	209
Columbia University.....	236	154
Cornell University.....	154	164
New York Medical College.....	183	226
New York University.....	253	104
University of Rochester.....	124	76
Syracuse.....	93	20
Duke.....	148	70
Bowen.....	81	140
Univer.....	160	158
Western Reserve University.....	160	138
Ohio State University.....	144	64
University of Oklahoma.....	128	136
University of.....	136	174
Hahneman.....	230	289
Jefferson.....	289	206
Temple University.....	237	232
University of Pennsylvania.....	268	28
Woman's Medical College.....	29	125
University of Pittsburgh.....	155	79
Medical College of South Carolina.....	96	57
University of Tennessee.....	182	50
Meharry Medical College.....	59	107
Vanderbilt University.....	107	35
Southwestern Medical College (Texas).....	57	12
Baylor University.....	15	108
University of Texas.....	205	64
University of Utah.....	73	68
University of Vermont.....	68	113
University of Virginia.....	141	156
Medical College of Virginia.....	170	128
University of Wisconsin.....	128	61
Marquette University.....	84	62
University of Alberta (Canada).....	70	24
University of Manitoba.....	55	27
Dalhousie University.....	75	19
Queen's University.....	83	8
University of Western Ontario.....	65	53
University of Toronto.....	245	77
McGill University.....	92	45
University of Montreal.....	47	37
Laval University.....	37	
Totals.....	11,074	8,783

the United States and Canada also held baccalaureate degrees, as shown in table 21. This does not include those earning the B.S. in medicine, who are presented in the next section.

In the United States 8,431 (or 80 per cent) of the 10,305 medical graduates also held bachelor's degrees and in Canada 352 (or 45 per cent) of the 769 medical graduates also held the additional degree. All the graduates of eight schools (Stanford, Minnesota, Cor-

nell, Oregon, Jefferson, Vanderbilt, Vermont and Wisconsin) held both degrees. Likewise, all the graduates of Laval held both degrees.

GRADUATES WITH THE B.S. IN MEDICINE

There were 218 graduates of medical schools in the United States in 1944-1945 who also at some point during their medical course received a bachelor's degree referred to as a B.S. in medicine. Certain of the graduates of eleven medical schools received this degree. The largest single group to receive the degree were 45 graduates of the University of Texas. Northwestern awarded 34 and Western Reserve 33. Other schools granted fewer than 30 and three schools less than 10. None of the graduates of Canadian medical schools in 1944-1945 obtained this degree.

FEES

The eighty-seven medical schools and basic science schools in the United States and Canada have been arranged in five groups in table 22 according to the tuition fees charged resident students for the session 1944-1945. The data are based on the average tuition fee charged for the complete medical course and includes such minor charges as those for matriculation, breakage, diploma and graduation.

There is a continuous upward trend in tuition fees. No school now charges less than \$100 for the year. The average tuition fee charged by medical schools in the past five years has increased from \$378 in 1940 to \$415 in 1945:

Thirty-three schools in the United States and five in Canada make an additional charge for nonresidents. The Army and Navy pay nonresident fees for their

TABLE 22.—Fees, 1944-1945

	Number of Schools
\$100 to 199.....	8
200 to 299.....	19
300 to 399.....	13
400 to 499.....	13
500 or over.....	34
Total.....	87

students. These sums vary considerably in amount. Toronto charges \$5 for the first year students and \$10 for others. Three schools charge \$50 or less annually. Three schools have nonresident tuition fees of \$350 or more: Oklahoma \$350, Louisiana State \$400 and Georgia \$445.

APPROVED INTERNSHIPS AND RESIDENCIES FOR VETERAN AND CIVILIAN PHYSICIANS

As the time approaches when greater numbers of medical officers will be returned to civilian life, it is becoming increasingly important that the medical profession and hospitals continue their efforts to maintain and develop adequate facilities and opportunities for the continued training of veteran and civilian physicians. Much has already been accomplished; studies carried out by the Council on Medical Education and Hospitals in collaboration with the Committee on Postwar Medical Service indicate that the required number of educational programs have now been developed in several fields. Other services, however, will require further expansion to meet the anticipated need of the postwar period.

Under normal peacetime conditions the approved hospitals in the United States provide opportunities for approximately 5,300 residents. After the war emergency this number will be augmented by a large group of medical officers who have recently indicated their desire for further residency training. From the initial report on Results of Pilot Questionnaire to Physicians in Service¹ it was estimated² that 10,260 medical officers would request full time educational assignments of more than six months' duration. This estimate has since been revised in view of the more recent report on Postgraduate Wishes of Medical Officers,³ in which it was indicated that 12,534 desire more than six months' training. Combining this figure with the normal civilian complement of 5,256 residents as reported in 1941, it might appear that hospitals may be called on to furnish a total of 17,790 residencies in the immediate postwar period. Since available services totaled 5,796 in 1943, the number of additional residencies required would be 11,994, assuming that rapid demobilization occurs. If considerable time is required, however, it has been estimated that 5,727 additional places

will be needed to supplement the facilities regularly available. Compared with 1943 the total requirement of 11,523 represents an increase of approximately 100 per cent in the number of residencies necessary for veteran and civilian needs.

The extent to which educational facilities have already been expanded is illustrated in table 23, which represents approved internships and residencies within the continental limits of the United States, not including the training programs of army and naval hospitals. This table, which classifies the educational services by states and specialties, contains also comparative data for 1943 as well as the estimated number of residencies required for postwar training. Here the cooperation of hospitals is readily apparent in the reported increase of approved residencies to 7,625 as compared with 5,796 in 1943. This is an expansion of 32 per cent since 1943, but it also represents an increase in available facilities of 45 per cent if compared with the normal prewar number of residents in approved hospitals. In relation to the total requirement of 11,523, however, the present available facilities constitute 66 per cent, or two thirds of the estimated needs.

The required expansion of residencies in specialties is not uniform in all fields. Comparing the estimated total in table 23 with the available facilities in 1943, it will be found that an increase of 122, 132 and 137 per cent may be required in obstetrics-gynecology, dermatology and surgery respectively, 55 to 84 per cent in anesthesia, radiology, pediatrics, urology, ophthalmology-otolaryngology, orthopedics and internal medicine, and 23, 36 and 41 per cent in neurologic surgery, psychiatry and neurology, and pathology. In the mixed residency or general review group, where the anticipated increase is 458 per cent, it is necessary to take into consideration that a large part of this demand will probably be absorbed by the approved internship hospitals which are likewise accredited for mixed resi-

1. J. A. M. A. 125: 558 (June 24) 1944.

2. J. A. M. A. 126: 254 (Sept. 23) 1944.

3. J. A. M. A. 127: 759 (March 31) 1945.

dencies. Plastic surgery records a required expansion of 650 per cent, but the actual number of services is small and may involve training in some of the related surgical fields.

From the number of available residencies in table 23 it is apparent that the estimated requirements in anesthesiology, neurologic surgery, pathology and psychiatry and neurology can practically be fulfilled by the expansion of residencies already reported in approved hospitals. Obstetrics-gynecology, dermatology and surgery seem to require a further expansion of 74, 55 and 79

expanded in accordance with available clinical and teaching facilities. Approximately 30 per cent have now replied, and their reports on the expansion of approved residencies are included in the present discussion. Counting also the new services under consideration, it is probable that this group may be able to provide altogether a total of 2,382 additional residencies.

A new list of Approved Residencies and Fellowships for Veteran and Civilian Physicians has recently been prepared. These services, investigated and approved by the Council, are considered in position to furnish

TABLE 23.—Approved Internships, Assistant Residencies and Residencies—1945

	Number of Intern- ships	Number of Assistant Residencies and Residencies *																	Totals
		Mixed	Anes.	Derm. Syph.	Int. Med.†	Neur. Surg.	Ob. Gyn.	Oph. Otol.	Orth. Surg.†	Path.	Ped.	Phys. Med.	Plas. Surg.	Neur. Psy.	Rad.	Surg.†	Uro.		
Alabama.....	51	16	..	..	7	..	5	..	2	3	4	..	..	..	9	2	48	
Arizona.....	9	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	
Arkansas.....	25	2	..	..	2	..	..	..	..	..	..	..	..	..	2	..	6	
California.....	528	22	7	6	94	9	27	26	21	21	25	2	..	29	19	68	14	390	
Colorado.....	68	6	..	..	17	..	..	2	4	1	7	..	..	13	2	4	..	56
Connecticut.....	175	5	14	..	24	2	8	3	5	10	7	..	..	25	5	19	2	129
Delaware.....	29	..	..	..	..	..	..	..	1	..	..	..	..	4	..	3	..	8
District of Columbia.....	134	..	..	2	41	..	21	8	6	12	18	..	..	15	5	33	2	163
Florida.....	59	1	..	..	5	..	..	..	..	..	..	..	..	..	1	6	1	14
Georgia.....	103	..	3	..	18	..	13	6	3	6	10	..	..	..	2	24	4	89
Idaho.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Illinois.....	649	12	19	5	89	9	66	71	29	53	46	4	..	38	29	74	11	655	
Indiana.....	159	7	6	..	15	..	5	6	3	10	3	..	..	11	8	11	1	86
Iowa.....	56	2	9	4	13	..	11	17	10	3	5	..	..	10	9	24	5	122
Kansas.....	48	..	2	..	5	..	4	1	1	3	1	..	..	8	2	5	..	32
Kentucky.....	69	2	2	..	12	..	5	2	4	2	5	..	..	..	..	21	..	63
Louisiana.....	250	6	3	10	35	..	22	38	20	11	13	..	..	10	10	30	10	218
Maine.....	22	..	..	..	1	..	..	..	..	..	13	..	..	..	10	30	10	218
Maryland.....	279	2	..	..	70	3	42	20	6	13	16	..	..	43	8	79	3	305
Massachusetts.....	397	25	21	5	104	10	19	20	11	20	13	..	..	63	21	61	11	424
Michigan.....	351	18	2	10	137	2	40	31	11	15	28	..	..	44	21	111	17	487
Minnesota.....	137	12	13	14	149	9	20	28	21	15	18	6	4	14	18	154	15	510	
Mississippi.....	..	..	..	..	3	..	..	..	..	..	..	..	..	..	1	..	..	4
Missouri.....	314	2	..	1	73	2	27	30	7	12	24	..	..	26	9	63	8	289
Montana.....	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nebraska.....	52	3	..	..	1	..	3	..	2	2	..	..	..	8	3	3	..	25
Nevada.....	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..
New Hampshire.....	8	4	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	8
New Jersey.....	393	..	8	..	24	..	20	10	10	4	3	..	..	10	1	14	9	113
New Mexico.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New York.....	1,642	19	59	29	328	21	138	150	67	84	108	..	3	226	75	298	50	1,655	
North Carolina.....	117	8	..	3	21	..	10	10	5	19	8	..	..	14	11	37	9	155
North Dakota.....	3	3	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	6
Ohio.....	455	9	3	10	149	7	37	21	12	33	47	..	..	28	26	139	13	634
Oklahoma.....	44	..	3	..	3	..	4	2	10	3	1	..	..	..	1	4	..	31
Oregon.....	65	..	3	5	5	..	3	4	6	6	3	..	..	2	5	8	3	53
Pennsylvania.....	773	..	8	11	68	4	39	34	15	39	26	..	1	49	39	69	8	420	
Rhode Island.....	44	..	1	..	3	..	4	..	2	2	..	..	..	14	..	..	..	22
South Carolina.....	42	..	..	..	4	..	..	..	5	..	3	..	..	..	2	6	..	24
South Dakota.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tennessee.....	136	2	..	..	22	1	16	7	10	7	10	..	..	5	23	..	..	101
Texas.....	190	6	3	..	22	..	13	5	4	3	13	..	..	3	7	31	1	111
Utah.....	35	..	..	..	6	..	..	..	..	..	..	..	..	..	2	..	..	8
Vermont.....	8	..	..	..	2	..	..	..	..	2	..	..	..	..	2	..	..	8
Virginia.....	120	15	..	7	22	10	10	17	9	2	8	..	..	10	10	35	6	161
Washington.....	116	2	..	..	6	..	1	2	1	1	1	..	..	11	1	12	..	38
West Virginia.....	40	8	..	..	6	..	1	..	..	2	..	..	..	..	..	10	..	27
Wisconsin.....	158	4	9	..	29	..	8	8	9	6	11	..	..	13	6	22	5	130
Wyoming.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals (1945).....	8,260	225	198	122	1,636	89	642	579	332	427	496	12	8	742	364	1,543	210	7,625	
Estimated total postwar residencies required.....	559	199	190	2,391	74	1,119	828	444	437	642	..	45	748	476	2,756	264	11,523	x	
Residencies in 1943.....	154	128	82	1,302	60	504	471	243	311	389	..	6	548	281	1,161	156	5,796	..	

x. Includes 91 residencies in other fields. * Includes fellowships. † Includes cardiology, communicable diseases and tuberculosis.
‡ Includes fractures. § Includes malignant diseases, thoracic surgery and traumatic surgery.

per cent in comparison with present facilities. In medicine the needed expansion is now 46 per cent, ophthalmology-otolaryngology 43, orthopedics 34, pediatrics 30, radiology 20 and urology 26 per cent. It should be noted that many of the hospitals approved for residency training have not yet developed their educational service to full capacity and are therefore in position to organize new training programs or effect further expansion of residencies already approved. Internship hospitals which have not previously engaged in residency training are also in many instances developing satisfactory educational programs in response to the increased need of the postwar period. All approved intern and residency hospitals have been asked to indicate the extent to which educational services can be

acceptable residency training in accordance with standards adopted by the American Medical Association. In practically all fields these training programs have been reviewed in collaboration with the respective specialty boards. The list includes also the expanded number of residencies now available in those approved hospitals which have completed their plans to provide further opportunities for returning medical officers. Many additional residencies recently organized or in process of development may soon be added to the approved list. Thus there is every indication that, with the continued cooperation of hospitals and medical staffs, adequate graduate educational facilities will be available to all medical officers who desire further training after discharge.

The residency list as well as the newly prepared list of Approved Internships will be included in the reprint edition of the Educational Number and will be given wide distribution to medical schools, state boards of medical examiners, specialty boards and other agencies. Lists will also be available to medical officers and other physicians on request.

The intern list contains the names of 734 institutions exclusive of army and naval hospitals. Under normal peacetime conditions these institutions would be able to accommodate 8,360 interns. Prior to the war most of these positions would have been filled even though the annual graduating class of medical students did not exceed 5,500. Nearly 2,300 places, it should be noted,

were occupied by interns who remained for a second year of service or held an original internship appointment of more than twelve months. In the postwar period it is anticipated that most of the internships will continue as one year assignments followed by assistant residencies and residencies for those who desire further hospital training. Thus there is ample assurance that sufficient facilities will be available to returning medical officers who may wish to obtain an internship, supplement their previous nine months training or secure advanced assignments as second year interns or general resident physicians. All internship hospitals approved by the Council are likewise accredited for general or mixed residencies.

POSTGRADUATE CONTINUATION COURSES FOR VETERAN AND CIVILIAN PHYSICIANS

While many scientific meetings and other programs of graduate medical education were canceled at the request of the Office of War Mobilization, nevertheless the Council on Medical Education and Hospitals has been able to provide a great deal of information regarding opportunities available for postgraduate study. An analysis of questionnaires returned by 21,029 medical officers concerning their postgraduate¹ wishes indicates that approximately 20 per cent of the group will desire short term refresher and review courses of less than six months' duration. The studies of the Council on Medical Education and Hospitals indicate that greatly expanded facilities will be available for this type of training for both veteran and civilian physicians but that there is an acute need to provide full time courses of about three months' duration. Reports from medical schools, hospitals, medical societies and other agencies give assurance of continued expansion of educational programs in anticipation of postwar needs. The demand for all facilities for instruction is greater than it has ever been. The individuals who will give or have given so generously of their time to participate in the instructional programs constitute a large and distinguished faculty of medicine. The efforts of individual physicians with their increasing personal responsibilities and institutions and other agencies with greatly depleted staffs to assist in the presentation of these opportunities is noteworthy.

The Council on Medical Education and Hospitals publishes semiannually advance information concerning postgraduate continuation courses. These include courses in a wide variety of fields in clinical medicine and the basic sciences. The courses are for variable periods from a few days to several months. Some are concentrated full time courses and others are part time. In THE JOURNAL for July 7, 1945 there were listed 493 courses which will be offered during the period July 1, 1945 to Jan. 16, 1946. Many of these courses are not scheduled for any definite date, are arranged to suit the convenience of the physician student and may be repeated throughout the year. Therefore the 493 opportunities listed represent many course sessions beyond this number. The analysis by Colonel Lueth² indicated that one of the most acute needs for expansion of postwar educational opportunities pertained to full time review and refresher courses of about three months' duration.

During the current six months 162 additional courses have been arranged as compared with the compilation

of such opportunities for the first half of the current year. The courses listed in the July 7 issue of THE JOURNAL² are offered by hospitals, medical schools, graduate medical schools or other agencies in twenty-six states and include forty-two specialty or subspecialty subjects. There appears to be adequate geographic distribution. Institutions offering continuation courses for veteran and civilian physicians are invited to announce such courses in these semiannual lists compiled by the Council.

It should be noted that these opportunities are offered in addition to the noteworthy in-service plans being formulated by the Army and the Navy.

In the following paragraphs mention is made of some of the recent and noteworthy developments in postgraduate education. An analysis of the courses offered during the period July 1, 1944 to June 30, 1945 is also presented.

RECENT DEVELOPMENTS

The three month full time courses being developed in a number of medical schools will fulfil a great demand from physician veterans who will wish an intensive review. Especially appropriate courses of this kind have recently been organized by the medical schools of the universities of Wisconsin, Illinois and Iowa.

Courses varying from three days to three weeks conducted wholly or on an individual basis are offered by the California Tuberculosis and Health Association. The instruction covers clinical diagnosis and treatment of tuberculosis. Two institutes are being planned for the fall of 1945 for physicians on the reading of miniature films. The course as planned will run five days in Los Angeles and five days in San Francisco.

The Department of Medicine of the Graduate School of the University of Florida, in conjunction with the Florida Medical Association and the State Board of Health, presented its Thirteenth Graduate Short Course for doctors of medicine June 25-30 with a total attendance of 202, consisting of both civilian physicians and physicians in the armed forces.

The Cook County Graduate School of Medicine has plans to accommodate returning medical officers by offering its large variety of courses at more frequent intervals. The length of the courses varies from two weeks to six months. A total of 1,114 physicians were in attendance at this institution during the last year.

1. J. A. M. A. 127:759 (March 31) 1945.

2. J. A. M. A. 128:751 (July 7) 1945.

The extension courses of the Kentucky State Medical Association provide for lectures to physicians at various places in the state.

The University of Michigan Department of Postgraduate Medicine is completing plans for three courses of two months each, probably continuing throughout the year, for returning medical officers especially.

The training program conducted since January 1942 in the Mayo Clinic under the auspices of the Mayo Foundation for Medical Education and Research has been temporarily discontinued. During the time these three months' courses have been in effect in the various fields over 1,200 officers have been assigned to them by the Army, Navy and Public Health Service. Pending the reestablishment of a postgraduate program at the Mayo Clinic, physicians are welcome to attend clinics, lectures and seminars any time for as long as they wish to remain.

At the Center for Continuation Study at the University of Minnesota a number of refresher courses have been given. The state department of health participated in many of these courses.

A total of 872 physicians enrolled in the New York Post-Graduate Medical School from July 1, 1944 to June 30, 1945. A considerable number of them enrolled for more than one course, as is shown by the fact that the number of registrations totaled 1,130. A number of new courses have been organized for the coming year which will be of particular interest and value to returning medical officers. Preparations are being made to accommodate as many as the physical facilities of the school will permit.

The annual summer graduate course in ophthalmology under the auspices of the University of Rochester School of Medicine and Dentistry, which was discontinued several years ago, was resumed this year.

The North Carolina State Board of Health sent 25 practicing physicians for two weeks' stay at the Southern Pediatric Seminar at Saluda, N. C. in July of this year. Funds for these scholarships were provided by the United States Children's Bureau. This group conducted its twenty-fifth annual seminar this year.

The Pennsylvania Tuberculosis Society offers three scholarships to practicing physicians in the state for the course at the Trudeau School of Tuberculosis. This consists of a six weeks postgraduate course at the Trudeau School at Saranac Lake, N. Y. It is the purpose of the Pennsylvania Tuberculosis Society in offering these scholarships to afford physicians in general practice in communities more or less distant from the metropolitan centers and who have not had special training or experience in tuberculosis opportunity to obtain training.

The Graduate Medical Course in caudal analgesia offered at the Philadelphia Lying-In Hospital is to be transferred to the University of Tennessee College of Medicine at Memphis in October 1945. The reason for this transfer is to provide more clinical material for increasing enrolments. The course will cover a period of two weeks and will be given continuously. In the past two and one-half years during which this course has been in operation in Philadelphia, 550 physicians from forty-four states and twenty-nine foreign countries have been trained.

Five courses have been arranged for periods of ten days to six months at the Institute for the Control of Syphilis of the University of Pennsylvania.

The Southwestern Medical College at Dallas, Texas, is prepared to offer two postgraduate courses, each of two months' duration. In addition, the Dallas Southern Clinical Society plans to conduct brief courses of one to two weeks' duration.

The Virginia Society of Ophthalmology and Otolaryngology sponsors a short postgraduate course each December, given in the even years at the University of Virginia School of Medicine at Charlottesville and in the odd years at the Medical College of Virginia in Richmond.

Courses of twelve weeks designed especially for the men who are returning from service who are not interested in the specialties are offered by the University of Wisconsin Medical School. Clinics in four cities were offered in the spring of 1945 by the State Medical Society of Wisconsin. More than 200 physicians attended these clinics.

A survey is being conducted by the American Gastroenterological Association with a view to sponsoring postgraduate work for the returning medical officers.

It was necessary to cancel the annual postgraduate medical teaching venture sponsored by the Inter-State Post-Graduate Medical Association, which draws an attendance of several thousand. Likewise the 1945 Clinical Congress of the American College of Surgeons, as well as its War Sessions, which last year attracted 17,000 physicians, were canceled.

The American Academy of Ophthalmology and Otolaryngology is again offering a home study course in ophthalmology or otolaryngology. The value of these home study courses is recognized by the specialty boards, and registrants are recommended for residencies and candidates for board certification, although it is specifically understood that completion of the academy courses does not necessarily fulfil the requirements of the boards for fundamental training.

The excellent opportunities outlined are mentioned to present the variability of the courses being offered throughout the country. *THE JOURNAL* for July 7, 1945 presents these and many others in detail. Such institutions as Tulane, Hopkins, Harvard, Tufts, New York Eye and Ear Infirmary, the New York Medical College, the New York Polyclinic and the University of Pennsylvania are continuing to offer organized courses. These examples emphasize the fact that, even though the staff physicians of all institutions are sorely taxed, they have been able to develop or continue opportunities for graduate education.

ANALYSIS OF COURSES OFFERED, 1944-1945

In presenting this analysis of postgraduate courses which have been offered during the annual period July 1, 1944 to June 30, 1945 the statistical summaries are divided into three groups: courses in which instruction was offered to physicians in or near their home communities, courses providing ample facilities for clinical instruction and, lastly, a group including clinical conferences, graduate assemblies, study courses and so forth.

Five states (Kentucky, Michigan, Minnesota, Oklahoma and Wisconsin) provided opportunities for physicians to continue professional study in or near their home communities. Subjects of these courses included general medicine, industrial health, neurology and psychiatry, ophthalmology, otolaryngology, pediatrics, poliomyelitis and surgery.

Agencies which were active participants in providing these opportunities, either independently or jointly,

included state and county medical societies in Kentucky, Michigan, Oklahoma and Wisconsin, the two medical schools in Michigan and the American Academy of Ophthalmology and Otolaryngology. Other agencies included the state departments of health in Michigan and Oklahoma, the Commonwealth Fund and the Horace H. and Mary A. Rackham Fund.

The courses varied in length from one day sessions to courses extending over nine months. There was a total of eight courses given. The type of instruction given was both didactic and clinical. Two courses were home study in nature. The instructors were chosen from physicians practicing in the state in which the courses were offered as well as from out of state men. Fees ranged from \$1 to \$9, while for two courses no fee was charged.

The attendance reported for these eight courses was 2,365. The attendance for such opportunities in 1944 was 3,955 for courses in eight states. Transportation and other difficulties greatly curtailed the sponsoring of these courses itinerant in nature, but nevertheless the value of this type of instruction should not be underestimated.

In centers where ample clinical facilities are available, 618 graduate courses of less than one year's duration were offered in twenty-three states and the District of Columbia. These states and the number of courses which were given in each during 1944-1945 are as follows:

Alabama.....	1	Iowa.....	1	North Carolina....	1
Arkansas.....	4	Kansas.....	2	Oregon.....	1
Colorado.....	1	Louisiana.....	9	Ohio.....	1
Dist. of Columbia..	13	Massachusetts.....	34	Pennsylvania.....	14
Florida.....	1	Michigan.....	15	South Carolina.....	2
Georgia.....	1	Minnesota.....	9	Texas.....	4
Illinois.....	165	Mississippi.....	1	Virginia.....	2
Indiana.....	1	New York.....	302	Wisconsin.....	13

While the majority of the courses were in various subjects as the demand seemed apparent, specific courses in general medicine were offered in forty-eight instances, neurology and psychiatry in forty-five, ophthalmology in thirty-nine, general surgery in thirty, obstetrics and gynecology in twenty-six, cardiology in seventeen, dermatology and syphilology, gastroenterology and otolaryngology in fifteen, electrocardiography in twelve and allergy in eleven. Ten courses or fewer were offered in anatomy, anesthesia, arthritis, bronchoscopy, cystoscopy and endoscopy, diabetes, diseases of the chest, electroencephalography, endocrinology, fractures, gastroscopy, gonioscopy, hematology, industrial medicine, legal medicine, neurosurgery, orthopedics, otology, pathology, pediatrics, physical medicine, poliomyelitis, proctology, public health, radiology, therapy, tropical medicine and urology.

Sixty-six agencies or combinations of agencies participated in the planning of the program. Three graduate schools of medicine played the most prominent part in offering courses of this nature. Of the medical schools of the country, seventeen have given courses for practicing physicians during the year. Two state medical associations, five state boards of health and three city or county medical societies made contributions. In nine instances hospitals were the agencies offering short periods of study. Other agencies included three special societies, the American College of Physicians, the United States Public Health Service, Research and Study Club of Los Angeles, Catholic University of America, Institute for Psychoanalysis, Chicago, Boston Psychoanalytic Institute, New York Academy of Medicine, Edward L.

Trudeau Foundation, University of North Carolina School of Public Health, Philadelphia Psychoanalytic Institute, Texas Academy of Science, Department of Medicine of the Graduate School of the University of Florida, Southern California Medical, Dental and Pharmaceutical Association, Rockefeller Foundation, Topeka Institute for Psychoanalysis, Commonwealth Fund, Harrington Fund, Lillia Babbit Hyde Foundation, Lasker Foundation, William Buchanan Foundation and Horace H. and Mary A. Rackham Fund. Columbia University, through the New York Post-Graduate Medical School and affiliated hospitals, offered the greatest number of courses.

The length of these courses varied from seven and one-half hours to twenty-four weeks for 323 courses. Ninety-five courses were full time opportunities ranging from one month to six months. Of the remaining 200 courses, 156 did not specify the length of the course, 20 were arranged courses, length not specified. There was a three year course and two courses of a year in length. The remainder specified the length of the course in semesters or quarters.

The description of these intensive courses gave evidence that the type of instruction was both clinical and didactic. In presenting postgraduate courses, medical school facilities were used for 405 courses, hospitals for 264 and clinics for 198. In many instances two or all three of these sources were used in presenting an individual course. Hotels and other facilities were used for 35 courses. The faculties of the medical schools served as instructors in 462 courses. Additional instructors were specialists in their fields chosen mainly from physicians residing within the state in which the course was given but including as well physicians from outside the state.

Courses were offered during every month last year, and in 69 instances they were arranged to suit the convenience of physician-students. There were 115 courses available for specialists only. Fees varied considerably, ranging from \$1 to \$800. For 14 courses no fee was charged. No fee was charged medical officers in 12 other courses.

The attendance reported for 611 of the 618 courses given last year was 9,833. In 1944 the attendance for 364 such courses was 8,888. As has previously been stated, 493 opportunities are being offered for the period July 1, 1945 to Jan. 16, 1946. Many of these have but recently been organized for the benefit of returning medical officers. If all physicians desiring further training are able to take advantage of the opportunities being offered, it can be estimated that the attendance for 1945-1946 will double that reported this year.

Clinical conferences and graduate assemblies of less than five days were held in twelve states. Many of these opportunities scheduled for the first six months of 1945 were canceled at the request of the Office of War Mobilization. The twelve states in which such studies were presented were Connecticut, Illinois (4), Michigan, Missouri (3), Nebraska, New York, North Carolina, Ohio, Pennsylvania, Texas (2), Virginia and West Virginia. The specialties covered were allergy, anesthesiology, dermatology and syphilology, industrial medicine, general medicine, neurology and psychiatry, neurosurgery, obstetrics and gynecology, ophthalmology and otolaryngology, pediatrics, physical therapy, radiology and tuberculosis. Twenty agencies participated in the instruction. The assemblies were held in centers with facilities for clinical and practical work and for

scientific exhibits. Instruction was both didactic and clinical. The facilities of hospitals, clinics and medical schools were used. The instructors included physicians residing in the state where the assembly was held, physicians from other states and members of the professorial faculties of medical schools. One or more assemblies were held in each month from September to April inclusive. Registration fees ranged from \$2 to \$15, while no fee was charged in two instances and four were free to medical officers. The total recorded attendance was 6,847. The total recorded attendance for all courses in 1944 was 19,045.

The travel restrictions have affected considerably the latter group as well as opportunities of an itinerant nature. The organized courses have been affected to a lesser extent. It is to be hoped that physicians may be able to avail themselves of a variety of courses scheduled for the future. The attendance for most of these courses is limited in number and is not affected by the edict of the transportation authorities.

For all three types of training offered during 1944-1945 the attendance was 18,206. This figure excludes physicians who were enrolled for courses of longer than a year's duration as well as those serving internships and residencies and physicians who attended the Wartime Graduate Medical Meetings, and courses arranged by the military authorities for medical officers.

WARTIME GRADUATE MEDICAL MEETINGS

Under the auspices of a committee representing the American Medical Association, the American College of Physicians and the American College of Surgeons a series of wartime graduate medical meetings have been held for the past several years. The administrative work is done entirely by a central committee with headquarters at the office of the American College of Physicians. Locally the programs have been arranged for and conducted under the supervision of regional chairmen and local committees. The central committee and regional chairmen have been emphasizing programs available to the men in military service rather than programs for the civilian physician. The major purpose of these activities is to maintain contact with civilian medicine. The central committee has initiated a program whereby a team of physicians covers a circuit of more or less isolated military installations in order to meet the needs that could not be met otherwise. The activities of these Wartime Graduate Medical Meetings continue, although it is probable that they will terminate at the conclusion of hostilities or as soon thereafter as demobilization takes place.

Programs, often more than one, were arranged in every state during the past year. These programs were arranged in one or more Army or Navy installations within a state and varied from a single lecture to a series of talks in a given center. The attendance at these sessions has not been reported routinely, but reports made by the Central Committee to the Committee on Postwar Medical Service gives evidence of the continued usefulness of these meetings.

POSTWAR EDUCATIONAL PLANS OF STATE MEDICAL SOCIETIES

Fourteen state medical societies have initiated or are planning programs of continuation education for physicians returning from military service. Some of these plans are in the formative stage, while a few states

have developed extensive programs. Other states have reported that they are not planning statewide programs of graduate education but have the assurance of the medical schools of the state that veteran physicians will be provided the type of graduate training they may desire. In some of the smaller states the personnel is not available to develop such opportunities.

The progress to date in the fourteen states referred to briefly is as follows:

The California Medical Association has appointed a Committee on Postwar Plans and has inaugurated studies of hospital internships and residencies as an initial stage of their responsibility and the foundation for the development of educational programs for returning physicians.

In Connecticut the Committee on Medical Care and Health of the State Postwar Planning Board designated a Subcommittee on Intern Curriculum to study intern service and intern training in Connecticut hospitals. This subcommittee brought out a report in November 1944 and included recommendations intended to serve as a guide to hospitals in improving the quality of internships available.

In Indiana postwar educational work is being done through the Indiana University School of Medicine. At the request of the Tippecanoe County Medical Society the university is conducting an extension course in postgraduate medical instruction at St. Elizabeth's Hospital, Lafayette, referred to as the "Lafayette Experiment." In this venture the physicians of Tippecanoe County are cooperating.

The Kansas Medical Society is attempting to raise through voluntary contributions a fund of \$100,000 to be used at the direction of its Committee on Graduate Education for the postwar training of Kansas doctors who are returning from the armed forces and for the establishment of programs of postgraduate instruction for the use of all members of the society. Various types of courses will be offered by the University of Kansas School of Medicine. The society in cooperation with the State Board of Health and the Kansas Hospital Association plan a comprehensive statewide study of hospitals. Plans are also under way to subsidize a program of postgraduate courses to be offered on the circuit plan in forty-five to fifty different centers in the state.

Extension courses are under way by the Kentucky State Medical Association which provide for lectures to physicians at various places on the plan of one day per week for four weeks. The cost of these courses will be borne by the state society which consists of travel expenses of lecturers.

The Committee on Postwar Planning in Massachusetts is ready to aid hospitals of the state in developing their organizations to provide approved residencies by visiting and consulting with hospital trustees and staff members. The society also plans to expand the circuit plan of graduate education which has been in operation in that state.

The 1944 Michigan State Medical Society House of Delegates created a Medical Veterans' Readjustment Program, financed by a five dollar special assessment per capita. In a few cases special and rather complicated postgraduate programs have been developed through the Office of Veterans' Affairs and the University of Michigan Department of Postgraduate Medicine.

In Missouri the Committee on Postwar Planning has prepared a preliminary report and a plea for cooperation in the plans of the national organizations which are assuming a major responsibility on a nationwide scale.

The educational program of the Medical Society of the State of New York provides for instruction consisting of single lectures, series of lectures and teaching days throughout the state in cooperation with the county medical society.

The Oklahoma State Medical Association and the State Board of Health, with funds contributed by these agencies as well as the Commonwealth Fund and the United States Public Health Service, offer a course consisting of one night a week for ten weeks in various centers throughout the state.

The Committee on Postwar Planning of the South Carolina Medical Association is preparing a program to mobilize both the medical and hospital facilities of the state in a program of education.

The Medical Society of Virginia is developing plans in order to be able to provide returning physicians with information as to where they can receive further training either of general or of specialized nature.

Tennessee has a Postwar Planning Committee which is cooperating with other agencies and institutions in the state.

The general plans of the Washington State Medical Association provide for the establishment of short clinical and some didactic courses in the various specialties. These courses will be offered primarily at King County Hospital, Seattle.

EXAMINING BOARDS IN THE MEDICAL SPECIALTIES

Fifteen examining boards leading to specialty certification have been organized, and all of these boards have been in operation since 1940. In 1933 the Council on Medical Education and Hospitals was instructed by the House of Delegates of the American Medical Association to formulate minimal standards deemed essential for certification as a specialist. At that time there were five examining boards in the medical specialties functioning: pediatrics, dermatology and syphilology, obstetrics and gynecology, ophthalmology and otolaryngology. The fifteen boards now operating are fully approved by the Council.

Two boards certify candidates in subspecialties. The American Board of Internal Medicine certifies in allergy, cardiovascular disease, gastroenterology and tuberculosis. Similarly the American Board of Surgery certifies specialists in proctology. Regular board certification is a prerequisite for certification in the subspecialty. This function of the boards in internal medicine and surgery is also approved by the Council.

The "Essentials of Approved Examining Boards in Medical Specialties," as prepared by the Council, outlines the type of organization and the responsibilities of such boards as well as the minimum qualifications deemed necessary for certification as a specialist. Such qualifications include graduation from an approved medical school, completion of an internship in a hospital approved by the Council, and a period of specialized training in a selected specialty. Three years of special training and a further period of two years devoted to specialty study and/or practice is considered by the Council to be the minimal training required before specialty practice. Some boards require more than this amount of training and education. Each board publishes a booklet containing information regarding its organization, personnel, purposes and requirements for certification. A statement of these requirements for each board was given in detail in the Educational Number of *THE JOURNAL* in 1942.¹ Only a few minor changes have been made by some of the boards since these regulations were published in 1942.

The Advisory Board for Medical Specialties was organized in 1933-1934 to coordinate graduate education and certification of medical specialists in the United States and Canada. This board reports directly to the member groups and functions in close collaboration with the Council on Medical Education and Hospitals of the American Medical Association.

The majority of the boards grant some credit for military service. The policies adopted by the boards vary. One board grants an indefinite amount of credit, to be determined by an evaluation of the experience of individual applicants. Another grants full credit for work done in the surgical division of a regularly constituted army or navy hospital. Most boards limit the credit allowed to one year of training and/or one year of experience. The special provisions for military credit made by each board were published in the 1943 Educational Number of *THE JOURNAL*.²

Prospective applicants who are in military services should obtain the booklet entitled "Record of Professional Assignments for Prospective Applicants for Certification by Specialty Boards" from the secretary of the board in the specialty desired. This booklet describes

TABLE 24.—Annual Specialty Board Certifications Since 1940

Year (Ended March)	Number of Boards in Existence	Number Certified That Year	Accumulated Totals
1940.....	14	.....	15,533
1941.....	15	2,085	17,938
1942.....	15	1,756	19,694
1943.....	15	2,172	21,866
1944.....	15	1,578	23,444
1945.....	15	1,308	24,752

procedures pertaining to military credit and will enable the candidate to keep an accurate account of work done in military service duly certified and will constitute part of the credentials to be submitted on application for certification. The American Board of Internal Medicine has conducted special examinations for certification in Europe. All boards schedule examinations in various cities throughout the country throughout the year for the convenience of civilian physicians seeking certification as well as those in military service. *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* announces specialty board schedules on alternate weeks under the heading "Medical Examinations."

The 9-9-9 graduate program curtails the number of physicians desiring specialty certification. Under this wartime program the various boards are taking this into consideration and will probably allow credit for the actual time spent by the candidate in house officer training in approved hospitals.

The Council on Medical Education and Hospitals cooperates with the various specialty boards in the

1. J. A. M. A. 119:1345 (Aug. 15) 1942.

2. J. A. M. A. 122:1085 (Aug. 14) 1943.

approval of residencies and fellowships acceptable for certification. The Council inspects and evaluates new residencies in most instances; it approves residency programs jointly with the specialty boards. This program has been established so that approved services may be equally acceptable to the Council and to the respective specialty boards.

An analysis of questionnaires returned by 21,029 medical officers pertaining to their future educational plans³ indicates that over 12,000 medical officers will seek specialty certification after the war. The Council, working with specialty boards, hospitals, medical

there were 23,444 physicians certified by the fifteen boards, and in the following year 1,308 were certified. Up to March 1, 1945 a total of 24,752 certificates had been issued. Included in these figures are 764 who had been certified in the subspecialties, namely allergy 75, cardiovascular disease 325, gastroenterology 157, proctology 71 and tuberculosis 136.

In the major specialties of general medicine and general surgery, 3,541 and 2,499 respectively have received the certificate of these boards. However, the greatest number in any one specialty certified was in otolaryngology. In this specialty 3,848 have received

TABLE 25.—Approved Examining Boards in Medical Specialties

Key No.	Name of Board	Year of Incorporation	Total Certificates Awarded to		Key No.	Name of Board	Year of Incorporation	Total Certificates Awarded to	
			March 30, 1944	March 1, 1945				March 30, 1944	March 1, 1945
A.B. 1.	American Board of Pediatrics..... Pres., Edward B. Shaw, 854 Post St., San Francisco Sec., C. A. Aldrich, 115½ First Ave. S. W., Rochester, Minn.	1933	2,220	2,318	A.B. 9.	American Board of Pathology..... Pres., Arthur H. Sanford, 102 Second Ave., S. W., Rochester, Minn. Sec., F. W. Hartman, Henry Ford Hospital, Detroit	1936	984	1,047
A.B. 2.	American Board of Psychiatry and Neurology..... Pres., Hans A. Reese, Wisconsin Psychiatric Institute, Madison Sec., Walter Freeman, 1028 Connecticut Ave. N. W., Washington, D. C.	1934	1,716	1,899	A.B. 10.	American Board of Ophthalmology Chairman, John Green, 3720 Washington Blvd., St. Louis Sec., S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.	1917	2,336	2,437
A.B. 3.	American Board of Orthopaedic Surgery..... Pres., Frank D. Dickson, 1400 Professional Bldg., Kansas City, Mo. Sec., Guy A. Caldwell, 3503 Prytania St., New Orleans	1934	860	896	A.B. 11.	American Board of Otolaryngology Pres., Harris P. Mosher, 127 Front St., Marblehead, Mass. Sec., Dean M. Lierle, University Hospital, Iowa City	1924	3,737	3,848
A.B. 4.	American Board of Dermatology and Syphilology..... Pres., Howard Fox, 140 E. 54th St., New York City Sec., George M. Lewis, 66 E. 66th St., New York City	1932	680	710	A.B. 12.	American Board of Surgery..... Chairman, Arthur W. Elting, 119 Washington Ave., Albany, N. Y. Sec., J. S. Rodman, 225 S. 15th St., Philadelphia	1937	2,349	2,499
A.B. 5.	American Board of Radiology..... Pres., John W. Pierson, 1107 St. Paul St., Baltimore Sec., Byrl R. Kirklin, 102-110 Second Ave., S. W., Rochester, Minn.	1934	2,012	2,093	A.B. 13.	American Board of Anesthesiology Pres., H. Boyd Stewart, 27th Place Tulsa, Okla. Sec., Paul M. Wood, 745 Fifth Ave., New York City	1938	231	249
A.B. 6.	American Board of Urology..... Pres., Herman L. Kretschmer, 122 S. Michigan Ave., Chicago Sec., Gilbert J. Thomas, 1409 Wil- low St., Minneapolis	1935	983	1,018	A.B. 14.	American Board of Plastic Surgery..... Chairman, John S. Davis, 701 Cathedral St., Baltimore Sec., James B. Brown, 508 N. Grand Blvd., St. Louis	1937	160	161
A.B. 7.	American Board of Obstetrics and Gynecology..... Pres., W. T. Dannreuther, 850 Park Ave., New York City Sec., Paul Titus, 1015 Highland Bldg., Pittsburgh	1930	1,764	1,871	A.B. 15.	American Board of Neurological Surgery..... Chairman, Howard C. Naffziger, 854 Post St., San Francisco Sec., Paul G. Bucy, 912 S. Wood St., Chicago	1940	149	163
A.B. 8.	American Board of Internal Medicine..... Chairman, Reginald Fitz, 319 Longwood Ave., Boston Asst. Sec., W. A. Werrell, 1301 University Ave., Madison, Wis.	1936	3,263	3,541	Advisory Board for Medical Specialties Pres., Paul Titus, 1015 Highland Bldg., Pittsburgh Sec., Byrl R. Kirklin, 102-110 Second Ave., S. W. Rochester, Minn.				
Totals.....			23,444	24,752					

Certification in the subspecialties: By the American Board of Internal Medicine: allergy 75, cardiovascular disease 325, gastroenterology 157, tuberculosis 136, total 633. By the American Board of Surgery: proctology 71. Total certified in the subspecialties, 764. These figures are included in the above tabulation.

schools and the Committee on Postwar Medical Service, has made notable progress in meeting these educational needs of the future in the advanced training of specialists, particularly physician veterans (see discussion, pp. 55 to 57).

Table 24 gives the annual number of specialists certified by all boards for the past five years. The largest number (2,172) obtained certificates in the year ended March 1943. In the two succeeding years there were progressive decreases primarily because of the war. Of all those physicians now certified, 37 per cent received their specialty credentials in the past five years.

A list of the specialty boards and their officers and the number of certificates awarded prior to March 30, 1944 and the number certified until March 1, 1945 respectively appear in table 25. On March 30, 1944

the board's certificate since its organization in 1924. The board in ophthalmology, organized in 1917 and the oldest board in existence, has to date certified 2,437 individuals.

A key number has been assigned to each approved board, such as A.B. 1, and the biographic records of physicians published in the American Medical Directory includes by this method reference to those certified by the boards.

The Council on Medical Education and Hospitals and representatives of the various boards and the Advisory Board for Medical Specialties annually hold a joint session for the interchange of ideas and the discussion of problems of mutual interest. These meetings have proved to be worthwhile contributions to the improvement of medical education and medical practice in this country.

APPROVED MEDICAL SCHOOLS

ARKANSAS

Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, 1209 McAlmont Street—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The faculty consists of 33 professors and 117 lecturers and instructors, a total of 150. The curriculum covers four sessions of nine months each. Entrance requirements are two years of collegiate work. The B.S. degree is conferred at the end of the second year. An accelerated program was adopted July 1, 1943, involving the admittance and graduation of a class approximately every nine months. The fees for the four years for residents of Arkansas are \$280 per year, nonresidents are charged \$225 additional each year. The registration for the present session is 266. The session began January 2 and will end September 21. The next session will begin October 1. The Dean is Byron L. Robinson, M.D.

CALIFORNIA

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, University Campus, Berkeley, Medical Center, San Francisco, Zone 22—Organized in 1864 as the Toland Medical College. The first class graduated in 1864. In 1873 it became the Medical Department of the University of California. In 1909, by legislative enactment, the College of Medicine of the University of Southern California, at Los Angeles, became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica, and therapeutics were provided. Coeducational since organization. Three years of collegiate work are required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. An accelerated program has been adopted consisting of three terms of sixteen weeks in each academic year. The medical course may now be completed in three years. The faculty is composed of 190 professors and 335 associates and assistants, a total of 525. The fees average \$162 per academic year, nonresidents are charged \$125 additional each year. The registration for the present session is 296. The session for the freshmen, sophomores and juniors began March 1 and will end October 20. The senior class began March 1, 1945 and will end Feb. 23, 1946. The next freshman class will begin October 29. The Dean is Francis Scott Smyth, M.D., San Francisco.

Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS, Loma Linda, Boyle and Michigan Avenues, Los Angeles, Zone 23—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda, the clinical departments at Los Angeles. Coeducational since organization. Three years of collegiate work are required for admission. The faculty is composed of 43 professors and 357 associate professors, assistant professors, instructors and assistants—making a total of 400. The course covers a period of three years of four nine-month academic sessions and an additional twelve-month (nine-month for military personnel) internship in an approved hospital. The total fees are respectively, \$602, \$590, \$612 and \$620. The registration for 1944-1945 is 371, graduates 73. The present session for the freshman and sophomore students began on Dec. 31, 1944 and will end Sept. 18 and Sept. 23, 1945, respectively. The present session for the junior students began Jan. 7, 1945, and will end on Sept. 21, 1945. The last session for the senior students began on Oct. 1, 1944, and ended on July 1, 1945. The next freshman class will begin on Oct. 5, 1945. The President is Walter E. Macpherson, M.D., Los Angeles. The Dean is Newton G. Evans, M.D., Loma Linda. The Associate Dean is W. F. Norwood, Ph.D., Los Angeles.

Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE, 3551 University Avenue, Zone 7—Organized in 1895 as the University of Southern California College of Medicine. First class graduated in 1888. In 1908 it became the Los Angeles Medical Department of the University of California. In 1909 the College of Physicians and Surgeons, established in 1904, became the Medical Department of the University of Southern California. Its activities were suspended in 1920, reorganized in May 1928, under present title. Entrance requirements are approximately 90 semester hours. During present national emergency will operate the year round on accelerated three term basis, each term continuing for sixteen

weeks. The faculty consists of 189 professors, associate professors and assistant professors and 241 instructors, assistants and lecturers—a total of 430, 147 of whom are now on active duty with the armed forces. An internship is required for graduation. Coeducational since organization. Annual fees (1½ academic years) amount to \$852. The registration for 1944-1945 was 254, graduates 54. The last session for freshmen, sophomores and juniors began Oct. 30, 1944 and ended July 27, 1945. Seniors began their course Oct. 16, 1944 and completed the course June 23. The next freshman class will begin Aug. 6, 1945. The Dean is Burrell O. Raulston, M.D.

Stanford University-San Francisco

STANFORD UNIVERSITY SCHOOL OF MEDICINE, University Campus, Stanford University, 2398 Sacramento Street, San Francisco. The main buildings are in San Francisco. The laboratories of anatomy, bacteriology and experimental pathology, chemistry, and physiology are located on the campus at Stanford University, which is thirty miles southeast of San Francisco adjoining the City of Palo Alto. The post office is Stanford University. Organized in 1908, when by agreement the interests of Cooper Medical College were taken over. The first class graduated in 1913. Coeducational since organization. The faculty consists of 138 professors and 190 lecturers, assistants and others, a total of 328. Two years of collegiate work are required for admission. The quarter plan is in operation. An internship is a requirement for graduation. The fees for the four years, respectively, are \$474, \$438, \$414 and \$414. The registration for 1944-1945 was 240, graduates 59. The present session for freshmen, sophomores and juniors began Jan. 8, 1945 and will end Sept. 29, 1945, for seniors Oct. 9, 1944 to June 23, 1945. The next freshman class will be enrolled Oct. 8, 1945. The Dean is Loren Roscoe Chandler, M.D.

COLORADO

Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, 4200 East Ninth Avenue—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911. Coeducational since organization. The faculty is composed of 57 professors and 130 lecturers, instructors and assistants, a total of 187. The accelerated program has been adopted. The entrance requirements for nonmilitary students are three years of collegiate work. The fees average \$100 per academic year. Nonresidents are charged \$82 additional each year. The registration for 1944-1945 was 237, graduates 55. The last session began Oct. 2, 1944 and ended June 26, 1945. The present freshman class enrolled July 2, 1945. The Acting Dean is Ward Darley, M.D.

CONNECTICUT

New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE, 333 Cedar Street—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812, instruction began in 1813, first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. Coeducational since 1916. The faculty consists of 197 professors and 197 lecturers and assistants, a total of 394. Of this number, 29 are on leave of absence for war service and about 150 others have entered the armed forces upon completion of or during appointments. The requirements for admission are three years of collegiate work. An accelerated program has been adopted. The fees average \$506 per academic year. The registration for 1944-1945 was 250, graduates 61. The last session began Sept. 25, 1944 and ended June 16, 1945. The next freshman session will commence September 24. The Dean is Francis G. Blake, M.D.

DISTRICT OF COLUMBIA

Washington

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 3900 Reservoir Road, N.W.—Organized in 1851. First class graduated in 1852. The faculty is composed of 50 professors, 49 associate professors, 22 assistant professors, 17 adjunct professors and 155 instructors, a total of 293, of whom 71 are on military leave. The complete premedical Army Specialized Training Program or Navy College Training Program satisfied the minimum prerequisites for military or naval trainees. Civilian students must finish at least three academic years of premedical work in an approved college of

arts and sciences. The accelerated program will be continued only as long as the Army and Navy programs remain in force. The fees average \$520 per academic year. Registration for 1944-1945 was 367, graduates 87. The current session for upper classmen began July 9, 1945. The next session for first year students will begin Sept. 10, 1945. The Dean is David V. McCauley, S.J., Ph.D.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, 1335 H Street, N.W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years except in 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an Act of Congress, the title of George Washington University was granted to the institution. Coeducational since 1884. The faculty is composed of 81 professors and 150 instructors, demonstrators and assistants, a total of 231. Sixty semester hours of collegiate work are required for admission. An accelerated program has been adopted. The fees average \$550 per academic year. The registration for 1944-1945 was 316; graduates, 73. The last session began Sept. 18, 1944 and ended in June 1945. The subsequent session for freshmen will begin Sept. 17, 1945 and end June 15, 1946; for other classes June 18, 1945 to March 9, 1946. The Dean is Walter A. Bloedorn, M.D.

HOWARD UNIVERSITY COLLEGE OF MEDICINE, Fifth and W. Streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The faculty comprises 38 professors and 73 instructors and assistants, a total of 111. The admission requirements are at least two years of collegiate work. The course covers four years of thirty-three weeks each. An accelerated program has been adopted. The fees are, respectively, \$334, \$334, \$324 and \$331. The registration for 1944-1945 is 273. The present class began Dec. 28, 1944 and will end Sept. 7, 1945. The next session will begin Sept. 29, 1945 and end June 7, 1946. The Dean is John W. Lawlah, M.D.

GEORGIA

Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE, 50 Armstrong Street, Zone 3.—Organized in 1854 as the Atlanta Medical College. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. For civilian students three years of collegiate work are required for admission. Students in the armed services are admitted in accordance with regulations set up by them. The course of study is four academic years of thirty-two weeks each. An accelerated program has been adopted. The fees for each of the four academic years are \$500. The registration for 1944-1945 was 248; graduates, 56. The last session began Oct. 2, 1944 and ended in June 1945. The next session for freshman will begin Sept. 24 and end June 15, 1946; for other classes sessions begin July 2 and end March 19, 1946. The Acting Dean is Eugene A. Stead, Jr., M.D.

Augusta

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. After 1873 it was known as the Medical Department of the University of Georgia. On July 1, 1933, the name was changed to the University of Georgia School of Medicine. Property transferred to the University in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. The faculty includes 30 professors and 65 associate and assistant professors, instructors, lecturers and assistants, a total of 95. Of this number 21 are on military leave. Three years of collegiate work are required for admission (except for the duration of the present war the minimum requirement will be two years for Army and Navy students). An accelerated program has been adopted. The fees average \$225 per academic year for residents of Georgia; nonresidents \$445. The registration for the 1944-1945 session was 285; graduates 64. The last session began Sept. 27, 1944 and ended June 11, 1945. The present session for the upper classes began July 6, 1945; the first year class will begin on Sept. 27, 1945. The Dean is G. Lombard Kelly, M.D.

ILLINOIS

Chicago

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 South Wolcott Avenue.—Organized in 1915 by acquisition of Bennett Medical College, which had been organized in 1869. Facilities enlarged upon by acquisition of Chicago College of Medicine and Surgery, faculties in basic medical sciences put on full time basis and present title assumed in 1917. Operated as an organic part of Loyola University. Coeducational since organization. The faculty is composed of 19 full time professors and 329 associate and

assistant professors, associates, instructors and assistants, a total of 348. Sixty semester hours of collegiate work are required for admission. The fees average \$515 per academic year. The registration for 1944-1945 was 313, graduates 80. The last session began on Oct. 2, 1944 and ended June 23, 1945. The subsequent session began July 5, 1945 for sophomores, juniors and seniors, and will begin on Oct. 1, 1945 for freshmen. The Dean is Italo F. Volini, M.D.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 303 East Chicago Avenue.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The faculty comprises 27 professors, 147 associate and assistant professors and 446 associates, instructors and clinical assistants, a total of 620. For the duration of the war the requirement for admission is two years of collegiate work. The B.S. in medicine degree may be conferred before the end of the senior year. An accelerated program has been adopted. A hospital internship is required for graduation. The total fees are \$500 each year. The registration for 1944-1945 was 584; graduates 165. The last session began Sept. 27, 1944 and ended June 9, 1945. The present session began on June 27, 1945 for sophomores, juniors and seniors; and will begin on Oct. 1, 1945 for freshmen. The Dean is J. Roscoe Miller, M.D.

UNIVERSITY OF CHICAGO, THE SCHOOL OF MEDICINE, Fifty-Eighth Street and Ellis Avenue.—Organized in 1924, as a part of the Ogden Graduate School of Science of the University of Chicago. In 1932, when the University of Chicago reorganized its departments, the medical departments were included in the Biological Sciences Division. The work of the first two years in the medical courses has been given on the University Quadrangles since 1899; but the last two years were offered only at Rush Medical College which was affiliated with the university until 1927 when actual work in the clinical departments on the campus began. After that time, candidates for the degree of Doctor of Medicine could take the work of the first two years on the campus and the work of the third and fourth years either on the campus or at the Rush Medical College. In June 1940 Rush Medical College became affiliated with the University of Illinois College of Medicine. All undergraduate instruction is now given only on the campus of the University of Chicago. The faculty of the School of Medicine is composed of 90 professors, 125 associates, instructors and others, a total of 215. The requirements for admission are 90 semester hours of collegiate work or completion of the Army or Navy premedical program. The B.S. degree may be obtained during the second year. The curriculum covers twelve quarters of work. Sixty-five students are admitted to the first year class each year. The tuition fee averages \$555. The registration for 1944-1945 was 252; graduates 62. Quarters begin in March, June, September and December of each year. All correspondence relating to general policies should be addressed to A. C. Bachmeyer, M.D., Associate Dean of the Biology Division, and that pertaining to student affairs to F. J. Mullin, Ph.D., Assistant Dean of Students.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 1853 West Polk Street, Zone 12.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relationship with the university was canceled in June 1912, and was restored in March 1913, when the present title was assumed. The staff of the Rush Medical College was incorporated in the University of Illinois College of Medicine in 1942 and at the same time Presbyterian Hospital, Chicago, became a teaching unit of the university. Coeducational since 1898. Two years of collegiate work are required for admission. An accelerated program has been adopted. The B.S. in medicine degree is conferred at the end of the second year. The faculty is composed of 250 professors and 250 associates, instructors and assistants, a total of 500. The fees for residents of Illinois average \$288 per academic year; nonresidents pay an addition fee of \$150. The registration for the present session is 665. The session began January 2 and will end September 14. The subsequent session will begin October 1, and end June 21, 1946. The Dean is Raymond B. Allen, M.D.

INDIANA

Bloomington-Indianapolis

Indiana University School of Medicine, Bloomington; 1040 West Michigan Street, Indianapolis.—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. The B.S. degree in anatomy and physiology is conferred. The school has been on an all time program since May 11, 1942. Three years of college work are required in normal times for admission, but during the national emergency the application from any student who has had two years of college will be accepted if his work is of a high standard. Each calendar year is divided into three semesters. The work given in two semesters is equivalent to the work formerly given in a year. The work of the first two semesters is given

at Bloomington, the remainder of the work at Indianapolis Regular fee for two semesters of work is \$217 for residents of Indiana and \$422 for nonresidents The registration for the last session was 397 The session began Dec 28, 1944 and ended Aug 18, 1945 The subsequent session will begin September 3 and will end April 23, 1946 The Dean is Willis D Gatch, M D, Indianapolis

IOWA

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus—Organized in 1869 First session began in 1870 First class graduated in 1871 Absorbed Drake University College of Medicine in 1913 Coeducational since 1870 The faculty is made up of 56 professors, 74 lecturers, demonstrators and assistants, a total of 130 Three years of collegiate work are required for admission The BA degree in the combined course of liberal arts and medicine is conferred An accelerated program has been adopted The tuition fee is \$226 each year for residents of Iowa and \$490 for nonresidents The registration for 1944-1945 was 307, graduates 81 The last session began on Oct 2, 1944 and ended June 16, 1945 The present session began on July 2, 1945 for sophomores, juniors and seniors, and will begin on Sept 24, 1945 for freshmen The Dean is Ewen Murchison MacEwen, M D

KANSAS

Lawrence-Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE, Lawrence, 39th Street and Rainbow Boulevard Kansas City—Organized in 1880 It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897 Absorbed Kansas Medical College in 1913 The first class graduated in 1906 The clinical courses are given at Kansas City Coeducational since 1880 The faculty includes 64 professors and 125 instructors, assistants and others, a total of 189 The requirement for admission is three years of collegiate work Students must have collegiate degree to enter sophomore year The BS degree in medicine is conferred at the end of the second year An accelerated program has been adopted The annual fees for residents of the state average \$218, nonresidents \$290 The registration for 1944-1945 was 302, graduates 80 The last session began on Oct 30, 1944 and ended June 26, 1945 The subsequent session began on July 2, 1945 for sophomores, juniors and seniors, and will begin on Sept 17, 1945 for freshmen The Dean is Harry R Wahl, M D, Kansas City

KENTUCKY

Louisville

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE, 101 West Chestnut Street Zone 2—Organized in 1837 as Louisville Medical Institute The first class graduated in 1838, and a class graduated each subsequent year except 1863 In 1846 the name was changed to University of Louisville Medical Department In 1907 it absorbed the Kentucky University Medical Department, in 1908, the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine In 1922 it changed its name to the University of Louisville School of Medicine Coeducational since organization Two years of collegiate work are the minimum requirements for admission Preference is given applicants with a degree or three college years leading to a degree The faculty numbers 68 professors and 70 assistants, instructors and others a total of 138 An accelerated program has been adopted Fees are \$450 for residents of Louisville and Jefferson County and \$550 for nonresidents, per school year The registration for 1944-1945 was 365, graduates 87 The last session began on Sept 27, 1944 and ended June 15, 1945 The subsequent session began July 11, 1945 and will end March 23, 1946 The Dean is John Walker Moore, M D

LOUISIANA

New Orleans

LOUISIANA STATE UNIVERSITY SCHOOL OF MEDICINE, 1542 Tulane Avenue, Zone 13—Organized January 1931 as Louisiana State University Medical Center Present title in 1939 Coeducational First session October 1931, with students of first and third year Faculty comprises 26 professors and 72 associate professors, assistant professors, instructors and assistants a total of 98 Course covers four sessions of not less than 32 weeks each Under the accelerated program adopted for the duration of the war, a first year class will be admitted each year and the entire course will be completed within a period of three years from the date of admission A minimum of three years collegiate work is required for admission Total fees, \$134 each year for residents of Louisiana, additional tuition of \$400 each year for nonresidents The registration for 1944-1945 was 325, graduates 80 The last session began Sept 27, 1944 and ended June 9, 1945 The present session began June 28, 1945 for second, third and fourth year students, and will begin Sept 13, 1945 for first

year students It will end March 9, 1946 for the first group and May 25, 1946 for freshmen The subsequent session will begin in April 1946 for third and fourth year students, June for second year students and September for first year students The Dean is Wilbur C Smith, M D

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE 1430 Tulane Avenue—Organized in 1834 as the Medical College of Louisiana Classes were graduated in 1835 and in all subsequent years except 1863 1865, inclusive It became the Medical Department of the Tulane University of Louisiana in 1884 Present title in 1913 Coeducational since 1915 The faculty comprises 34 professors and 240 associate and assistant professors, instructors and assistants, a total of 274 An accelerated program has been adopted A minimum of three years of collegiate work is required for admission Total fees average \$547 per academic year The registration for the last session was 514 The session began on Dec 1, 1944 and ended Aug 14, 1945 The next session will begin Sept 1, 1945 and will end May 15, 1946 The Dean is Hiram W Kost maver, M D

MARYLAND

Baltimore

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, 710 North Washington Street—The nucleus of a Medical Faculty was constituted in 1883 Systematic postgraduate instruction in pathology and bacteriology was begun in 1886 School was fully organized and opened in 1893 The first class graduated in 1897 Coeducational since organization The faculty consists of 71 professors and 403 instructors, assistants and others, a total of 474 The requirement for admission is temporarily two college years An accelerated program has been adopted The fees average \$627 per academic year The registration for 1944-1945 was 309, graduates 81 The last session began on Sept 25, 1944 and ended June 7, 1945 The subsequent session began June 8, 1945 for sophomores, juniors and seniors and will begin Sept 10, 1945 for freshmen The Dean is Alan M Chesnev, M D

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, Lombard and Greene Streets, Zone 1—Organized in 1807 as the College of Medicine of Maryland The first class graduated in 1810 In 1812 it became the University of Maryland School of Medicine Baltimore Medical College was merged with it in 1913 In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed Coeducational since 1918 The faculty consists of 52 professors and 332 associate and assistant professors and others, a total of 384, of which 137 are now absent serving with the Armed Forces Premedical college training reduced from three to two years for the duration of the war An accelerated program has been adopted The tuition fees average \$508 for residents of the state, for nonresidents approximately \$150 additional The registration for 1944-1945 was 375, graduates 86 The last session began Oct 17, 1944 and ended June 22, 1945 The subsequent session for sophomores, juniors and seniors began July 19, 1945, and will begin on Sept 19, 1945 for freshmen The Dean is Robert U Patterson, M D

MASSACHUSETTS

Boston

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street—Organized in 1873 as a homeopathic institution In 1874 the New England Female Medical College, founded in 1848, was merged into it The first class was graduated in 1874 Became nonsectarian in 1918 Coeducational since organization Army and Navy assignees are admitted on completion of the standard premedical A S T P and the V 12 programs In 1945 civilian students are being admitted on the basis of two years of collegiate training In 1946 civilian applicants will be required to present a minimum of three years of premedical work The faculty includes 23 professors, 214 associate and assistant professors, instructors and others, a total of 237 The accelerated program will be continued as long as may be required by the Army and Navy First year classes will start annually in September Total fees average \$600 per year The registration for 1944-1945 was 248, graduates 65 The last session began Oct 5, 1944 and ended June 9, 1945 The subsequent session for sophomores, juniors and seniors began June 29, 1945, freshmen will be enrolled Sept 21, 1945 The Dean is Charles F Branch M D

HARVARD MEDICAL SCHOOL, 25 Shattuck Street, Zone 15—Organized in 1782 The first class graduated in 1788 It has a faculty of 204 members, and 449 other instructors and assistants, a total of 653 Two years of collegiate work are required for admission The accelerated program has been adopted The fees average \$600, plus \$5 the first year for matriculation The registration for 1944-1945 was 525, graduates 141 The last session began Oct 2, 1944 and ended June 25, 1945 The subsequent session began on July 2, 1945 for sophomores and juniors, on June 25, 1945 for seniors, and freshmen will be enrolled Sept 24, 1945 The Dean is C Sidney Burwell, M D

TUFTS COLLEGE MEDICAL SCHOOL 416 Huntington Avenue—Organized in 1893 as the Medical Department of Tufts College The first class graduated in 1894 Coeducational since 1894 It has a faculty of 107 professors and 352 instructors, lecturers and others a total of 459 Four

academic years of college study are required for admission. An accelerated program has been adopted. The total fees for each of the four years, respectively, are \$512, \$507, \$507 and \$517. The registration for 1944-1945 was 410, graduates 97. The last session began on Oct. 2, 1944 and ended June 2, 1945. The subsequent session began in July 1945 for sophomores, juniors and seniors, and will begin on Sept. 17, 1945 for freshmen. The Acting Dean is Dwight O'Hara, MD.

MICHIGAN

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since 1870. It has a faculty of 28 professors, 19 associate professors, 31 assistant professors, 89 assistants, instructors and lecturers, a total of 167. The entrance requirements are ninety semester hours. An accelerated program has been adopted. The fees average \$280 per academic year, for nonresidents \$450 a year. The registration for the last session was 589. The last freshman class was enrolled Oct. 30, 1944. The next class for freshmen will begin Oct. 29, 1945. The Dean is A. C. Furstenberg, MD.

Detroit

WAYNE UNIVERSITY COLLEGE OF MEDICINE, 1516 St. Antoine Street—Organized as the Detroit College of Medicine in 1885 by consolidation of the Detroit Medical College (organized in 1868) and the Michigan College of Medicine (organized in 1879). Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1869. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by action of the Detroit Board of Education to Wayne University College of Medicine, as a part of the program of consolidation of the Detroit city colleges into a university system. Coeducational since 1917. Entrance requirement is 60 semester hours from an accredited college or university for the duration of the war. The faculty consists of 46 professors, 302 lecturers and others, a total of 348. An accelerated program has been adopted. The fees average \$361 for Wayne County residents, and for nonresidents, \$454. The registration for 1944-1945 was 248, graduates 66. The last session began Oct. 2, 1944 and ended June 23, 1945. The present session began July 2, 1945. The Dean is Hardy A. Kemp, MD.

MINNESOTA

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL, Zone 14—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 248 professors, of whom 93 are on full time appointment and 155 on part time, and 137 instructors, 28 of whom are on full time appointment and 109 on part time, a total of 385. An accelerated program has been adopted. The entrance requirements are three years of university work. Students are required to meet the requirements for a degree of BS or BA before receiving the degree of Bachelor of Medicine (MB), which is granted at the end of the course. The MD degree is conferred after a year of intern work, of advanced laboratory work, or of public health work has been completed. Total fees are \$252 per academic year for residents and \$477 for nonresidents. The registration for 1944-1945 was 452, graduates 132. The last session began Oct. 2, 1944 and ended June 15, 1945. The subsequent session began July 2, 1945. The Dean is Harold S. Diehl, MD.

MISSOURI

St. Louis

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Boulevard, Zone 4—Organized in 1901 as the Marion Sims Beaumont Medical College by union of Marion Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical School of St. Louis University in 1903. The faculty is composed of 80 professors and 284 instructors and assistants, a total of 364. The completion of three years of college study is the minimum admission requirement but students presenting meritorious credits in excess of the minimum are accepted by preference. During the war period the minimal entrance requirements, however, are two years of college with 60 semester hours of credit. An accelerated program has been adopted. The fees average \$536 per academic year. The registration for 1944-1945 was 536, graduates 136. The last session began on Aug. 28, 1944 and ended June 28, 1945. The subsequent session began June 29, 1945. The Dean is Alphonse M. Schwitalla, SJ, PhD.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Kingshighway and Euclid Avenue, Zone 10—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St. Louis

Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1918. The faculty comprises 162 professors and 341 lecturers, instructors and others, a total of 503. Three years of collegiate work for civilians is required. The BS degree in medicine is conferred at the end of the third or fourth year. An accelerated program has been adopted. The fees average \$596. The registration for 1944-1945 was 367, graduates 100. The last session began on Oct. 5, 1944 and ended June 23, 1945. The subsequent session began July 9, 1945 for sophomores, juniors and seniors, and will begin on Sept. 27, 1945 for freshmen. The Dean is Philip A. Shaffer, PhD.

NEBRASKA

Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE, 306 North Fourteenth Street, Zone 2—Organized in 1892 as the John A. Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 79 professors and 76 instructors, lecturers and assistants, a total of 155. Sixty semester hours of collegiate work are required for admission. The BS degree in medicine is conferred at the end of the second year. An accelerated program has been adopted. The fees average \$376 per academic year and \$100 additional each year for students who had not taken the major part of their work at Creighton University. The registration for 1944-1945 was 247, graduates 59. The last session began on Sept. 28, 1944 and ended June 2, 1945. The subsequent session began July 6, 1945 for sophomores, juniors and seniors, and will begin on Sept. 28, 1945 for freshmen. The Dean is Charles M. Wilhelm, MD.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty Second Street and Dewey Avenue, Zone 5—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913 when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 78 professors and 54 lecturers and instructors, a total of 132. Two years of collegiate work are required for admission. An accelerated program has been adopted. The BS degree in medicine is conferred at the end of the second year. The fees average \$250 per academic year. The registration for 1944-1945 was 330, graduates 76. The last session began Oct. 2, 1944 and ended June 16, 1945. The subsequent session began July 2, 1945 for sophomores, juniors and seniors, and will begin on Sept. 20, 1945 for freshmen. The Dean is C. W. M. Poynter, MD.

NEW YORK

Albany

ALBANY MEDICAL COLLEGE, 47 New Scotland Avenue—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Coeducational since 1915. The faculty is composed of 87 professors and 109 instructors, assistants and others, a total of 196. The requirement for admission is three years of college work. For the duration students who have completed two years of college and who have the proper specific qualifications will be admitted. An accelerated program has been adopted. The fees average \$536 per academic year. The registration for 1944-1945 was 184, graduates 40. The last session began Oct. 2, 1944 and ended June 16, 1945. The subsequent session began July 2, 1945. The Dean is R. S. Cunningham, MD.

Brooklyn

LONG ISLAND COLLEGE OF MEDICINE, 350 Henry Street, Zone 2—Chartered in 1930, was originally organized in 1858 as The Long Island College Hospital. From the collegiate department the first class was graduated in 1860 and the last class in 1930. The first class of the Long Island College of Medicine was graduated in 1931. It is coeducational. It has a faculty of 132 professors, associate, assistant, clinical and assistant clinical professors and 228 lecturers, associates, instructors, assistants and others, a total of 360. For the duration of the war two years of collegiate work, including specified courses, are required for admission for men in the armed services, three years for civilians. The medical course covers four academic years but is being given in three calendar years for the duration of the war. The fees average \$610 per academic year. The registration for 1944-1945 was 417, graduates 109. The last session began on Oct. 2, 1944 and ended June 28, 1945. The subsequent session began June 25, 1945 for sophomores, juniors and seniors and will begin on Sept. 24, 1945 for freshmen. The President and Dean is Jean A. Curran, MD.

Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE, 24 High Street—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 111 professors and 172 associates, assistants and others, a total of 283. The minimum requirement for admission is two years of collegiate work including certain prescribed science subjects. An accelerated program has been adopted. The fees

for the entire course are \$2,000. The registration for 1944-1945 was 319, graduates 74. The present session began on Jan. 2, 1945 and will end on Sept. 22, 1945, seniors were enrolled from Oct. 2, 1944 to June 23, 1945. The next session for freshmen will begin Oct. 1, 1945. The Dean is Edward W. Koch, M.D.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 630 West One Hundred and Sixty-Eighth Street—The medical faculty of Columbia College, then known as King's College, was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. The faculty is composed of 277 professors and 594 instructors, demonstrators and others, a total of 871. Three years of collegiate work are required for admission. During the war, the school will remain in session throughout the year and entering classes will be enrolled once a year. Fees average \$538 per academic year. The registration for 1944-1945 was 463, graduates 114. The last session began on Oct. 5, 1944 and ended June 16, 1945. The subsequent session began on July 2, 1945 for sophomores, juniors and seniors, and will begin on Oct. 4, 1945 for freshmen. The Dean is Willard C. Rappleye, M.D.

CORNELL UNIVERSITY MEDICAL COLLEGE, 1300 York Avenue—Organized in 1898. Coeducational since organization. First year teaching was given formerly to approximately one third of the class at Ithaca but in 1938 this division was discontinued and all instruction is now in New York City. The faculty is composed of 155 professors and 223 instructors, assistants and others, a total of 378. All students admitted are from approved colleges for premedical training. The requirement for admission is three years of college work. An accelerated program has been adopted. The fees average \$622 per academic year. The registration for 1944-1945 was 317, graduates 77. The last session began Sept. 28, 1944 and ended June 26, 1945. The subsequent session began for sophomores, juniors and seniors on July 11, 1945, and will begin on Oct. 1, 1945 for freshmen. The Dean is Joseph C. Hinsey, Ph.D.

NEW YORK MEDICAL COLLEGE, FLOWER AND FIFTH AVENUE HOSPITALS, 1 East 105th Street—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869, the title New York Homeopathic Medical College and Hospital in 1887, the title New York Homeopathic Medical College and Flower Hospital in 1908, the title New York Medical College and Flower Hospital in 1936, the present title of New York Medical College, Flower and Fifth Avenue Hospitals, June 22, 1938. The first class graduated in 1861. Coeducational since 1919. Three years of college work are required for admission. An accelerated program has been adopted. It has a faculty of 97 professors and associate professors, 76 assistant professors, 305 lecturers and assistants, a total of 478. The fees average \$683 per academic year. The registration for 1944-1945 was 434, graduates 94. The last session began on Oct. 2, 1944 and ended June 12, 1945. The subsequent session began on July 23, 1945 for sophomores, juniors and seniors, and will begin on Sept. 17, 1945 for freshmen. The President and Dean is J. A. W. Hetrick, M.D.

NEW YORK UNIVERSITY COLLEGE OF MEDICINE, 477 First Avenue, Zone 16—The Medical Department of New York University (then called the University of the City of New York) was organized in 1841. In 1898 it united with the Bellevue Hospital Medical College, organized in 1861, under the name of University and Bellevue Hospital Medical College. In 1935 the name was changed to New York University College of Medicine. Coeducational since 1919. The faculty is composed of 233 professors, associate, assistant, clinical, associate clinical and assistant clinical professors and 362 lecturers, instructors and others, a total of 595. An accelerated program has been adopted. Entrance requirements are two years of study in an approved college of arts and sciences. The fees average \$600 per academic session. The registration for 1944-1945 was 533, graduates 122. The last session began on Oct. 2, 1944 and ended June 18, 1945. The subsequent session began on July 9, 1945 for sophomores, juniors and seniors and will begin on Oct. 1, 1945 for freshmen. The Acting Dean is Donal Sheehan, M.D.

Rochester

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY, 260 Crittenden Boulevard, Zone 7—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization. The faculty is composed of 79 professors, 224 lecturers, assistants, instructors and others, a total of 303. The accelerated program has been adopted. For the duration of the national emergency, two years of collegiate work are required for admission. The fees average \$500 per academic year. The registration for 1944-1945 was 258, graduates 61. The last session began on Oct. 2, 1944 and ended June 16, 1945. The subsequent session began July 2, 1945 for sophomores, juniors and seniors, and will begin on Oct. 1, 1945 for freshmen. The Dean is George H. Whipple, M.D.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 766 Irving Avenue, Zone 10—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 61 professors and 185 associate and assistant professors, lecturers and instructors, a total of 246. Two years of a recognized college course are required for admission. An accelerated program has been adopted. The fees average \$600 per academic year. The registration for 1944-1945 was 199, graduates 47. The present session for freshmen, sophomores and juniors began Jan. 2, 1945 and will end Sept. 22, 1945, seniors were enrolled from Oct. 2, 1944 to June 24, 1945. The subsequent session for all classes will begin Oct. 1, 1945. The Dean is H. G. Weiskotten, M.D.

NORTH CAROLINA

Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE—Organized in 1925. The first class was admitted Oct. 1, 1930. Coeducational. The faculty is composed of 13 professors and 141 associate and assistant professors, lecturers, instructors and assistants, a total of 154. The premedical requirement is three years of college work. The academic year consists of four quarters of twelve weeks each, which must be taken consecutively, with graduation in three calendar years. The B.S. degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. Active duty with the Army, Navy or Public Health Service can replace the second year. The fees are \$450 for each year of three quarters. The registration for 1944-1945 was 298, graduates 75. During 1945 the quarters begin January 2, April 3, July 2, October 1 and end March 24, June 23, September 22, and December 22. The next freshman class will be enrolled Oct. 1, 1945. The Dean is Wilburt C. Davison, M.D.

Winston-Salem

BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE, Zone 7—Organized in 1902 at Wake Forest as a school offering only the first two years of the curriculum. In 1941 the school was moved to Winston-Salem and expanded to a complete four-year medical school under its present name. Coeducational. Ninety semester hours of college work are required for admission. An accelerated program has been adopted. The faculty numbers 121, 14 of whom are on leave of absence in active military service. Tuition fees average \$510 per year. The registration for 1944-1945 was 191, graduates 43. The last session began on Sept. 27, 1944 and ended June 20, 1945. The subsequent session began July 2, 1945 for sophomores, juniors and seniors and will begin on Sept. 26, 1945 for freshmen. The Dean is C. C. Carpenter, M.D.

OHIO

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden and Bethesda Avenues—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909 the Miami Medical College also merged with the University when the title of Ohio Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Coeducational since organization. Candidates for admission to the freshman class will be accepted in accordance with the Army and Navy plan for the training of medical students for the duration of the war. Liberal arts students of the University of Cincinnati may enroll for the seven-year combined liberal arts and medical program. The B.S. degree is granted on the joint recommendation of the faculties of the College of Liberal Arts and Medicine at the end of the first medical year. The faculty consists of 112 professors, associate and assistant professors, 350 instructors, etc., a total of 462. During the period of the war emergency the college will operate on an accelerated program. Tuition is as follows for legal residents of Cincinnati: \$500 a year plus breakage fees (\$50 additional for those not legal residents). The registration for 1944-1945 was 326, graduates 81. The last session began on Sept. 5, 1944 and ended June 8, 1945. The present session for sophomores, juniors and seniors began June 4, 1945 and will end Feb. 16, 1946. The session for the freshman class will begin Oct. 8, 1945 and will end July 6, 1946. The Dean is Stanley Dorst, M.D.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 2109 Adelbert Road, Zone 6—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College. The first class graduated in 1844. The school assumed the present title in 1881. In 1910 the

Cleveland College of Physicians and Surgeons was merged Coeducational since 1919 The faculty includes 102 professors and 276 lecturers, assistants and others a total of 378 The curriculum covers four scholastic years of 38 to 40 weeks each During the war emergency, these are spaced so that the entire course will be completed in three calendar years For the duration of the war the entrance requirements for Army and Navy students have been reduced to two years of college work, however, civilian students are required to have three years of college work The fees average \$529 per academic year The registration for 1944-1945 was 337, graduates 87 The last session began Aug 28, 1944 and ended May 19, 1945 and on June 2, 1945 for the fourth year class The subsequent session began on June 4, 1945 for sophomores, juniors and seniors, and will begin on Sept 17, 1945 for freshmen The Dean is Joseph T Wearn, MD

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, Neil and Eleventh Avenues, Zone 10—Organized in 1907 as the Starling Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter granted by the State Legislature changing the name from Willoughby Medical College, which was chartered March 3, 1834) with the Ohio Medical University (organized 1890) In 1914 it became an integral part of the Ohio State University with its present title Coeducational since organization The faculty consists of 94 professors, associate and assistant professors, 120 lecturers, instructors and assistants, a total of 214, of whom 78 are on military leave Three years of collegiate work are required for admission An accelerated program has been adopted Tuition fees average \$318 per academic year and \$150 additional for nonresidents The registration for 1944-1945 was 311, graduates 73 The last session began on Oct 3, 1944 and ended June 18 1945 The subsequent session began on June 19, 1945 for sophomores, juniors and seniors, and will begin on Oct 2, 1945 for freshmen The Dean is Charles A Doan, MD

OKLAHOMA

Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE 801 North East Thirtieth Street, Zone 4—Organized in 1900 Until 1910 gave only the first two years of the medical course at Norman Oklahoma, after which a clinical department was established at Oklahoma City by taking over the Medical School of Epworth University The first class graduated in 1911 Coeducational since organization A new medical school building and a second teaching hospital became available in 1928, and since September of that year the entire four year course has been given in Oklahoma City It has a faculty of 41 professors, 30 associate professors, 37 assistant professors and 105 associates, lecturers, visiting lecturers, instructors and assistants a total of 213 Two years of college work are a prerequisite for admission during the war After Jan 1, 1946, the prerequisites will be raised to the prewar requirement of three years The course covers four years of nine months each An accelerated program has been adopted Fees \$50 'maintenance and incidental fee' per semester Other annual course fees average \$122, \$99 50, \$57 and \$47, in the order given beginning with the freshman year For students not residents of Oklahoma there is a tuition charge of \$350 a year, plus laboratory and course fees as indicated for the different years The registration for 1944-1945 was 287, graduates 72 The last session began Sept 25, 1944 and ended June 15, 1945 The next session will begin July 2, 1945 and end March 22, 1946 The Dean is Tom Lowry, MD

OREGON

Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL Marquam Hill Zone 1—Organized in 1887 The first class graduated in 1888 and a class graduated each subsequent year except 1898 The Willamette University Medical Department was merged in 1913 Coeducational since organization It has a faculty of 91 professors and 164 lecturers assistants and others a total of 255 Entrance requirements are 82 semester hours of collegiate work An accelerated program has been adopted The total fees are, respectively, \$380 \$375, \$370 and \$376 for residents of Oregon, and \$60 a year additional for nonresidents The registration for 1944-1945 was 292, graduates 70 The last session began on Oct 2, 1944 and ended June 23 1945 The subsequent session began on July 2, 1945 and will end March 23, 1946 The Dean is D W E Baird, MD

PENNSYLVANIA

Philadelphia

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA, 235 North Fifteenth Street, Zone 2—Organized in 18-8 as The Homeopathic Medical College of Pennsylvania In 1869 it united with The Hahnemann Medical College of Philadelphia taking the latter title Assumed present title in 1885 The first class graduated in 1849 Coeducational beginning with 1941-1942 session Two years of collegiate work in an approved college of arts and sciences are required for admission It has a faculty of 113 professors and 114 lecturers, instructors and others a total of 227 An accelerated program has been adopted Fees are respectively, \$527, \$524, \$524 and \$547

The registration for 1944-1945 was 577, graduates, 123 The last session began on Oct 2, 1944 and ended June 14, 1945 The subsequent session began July 9, 1945 for sophomores juniors and seniors and will begin on Oct 1, 1945 for freshmen The Chairman of the Faculty Executive Committee is William G Schmidt, PhD

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, 1025 Walnut Street—Organized in 1825 as the Medical Department of Jefferson College—Canonsburg Pa It was chartered with its present title in 1838 Classes have been graduated annually beginning 1826 In 1938 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees It has a faculty of 92 professors associate and assistant professors and 232 associates, lecturers demonstrators and instructors, a total of 324 The bachelor's degree requirement for admission has been suspended for the duration An accelerated program has been adopted The total fees are \$450 a year The registration for 1944-1945 was 607, graduates 154 The last session began on Oct 9, 1944 and ended June 18, 1945 The subsequent session for sophomores, juniors and seniors began July 16, 1945, freshmen will begin Oct 1, 1945 The Dean is William H Perkins MD

TEMPLE UNIVERSITY SCHOOL OF MEDICINE, 3400 North Broad Street, Zone 40—Organized in 1901 The first class graduated in 1904 Coeducational since organization The faculty numbers 29 professors and 214 associates, assistants and others a total of 243 An accelerated program has been adopted Three years of collegiate work are required for admission The fees average \$492 per academic year The registration for 1944-1945 was 496, graduates 127 The last session began Oct 2, 1944 and ended June 21, 1945 The present session began July 2, 1945 and will end March 21, 1946 The Dean is William N Parkinson, MD

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE Thirty Sixth and Pine Streets—Organized in 1765 Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779, inclusive The original title was the Department of Medicine, College of Philadelphia The present title was adopted in 1909 It granted the first medical diploma issued in America In 1916 it took over the Medico Chirurgical College of Philadelphia to develop it as a graduate school Coeducational since 1914 The faculty consists of 135 professors, associate and assistant professors and 449 lecturers, associates, instructors and others a total of 584 Three years of collegiate work are required for admission An accelerated program has been adopted The tuition fee is \$500 each year, with a deposit fee of \$15, a general fee including student health of \$15 and a matriculation fee of \$5 The registration for 1944-1945 was 527, graduates 133 The last session began on Oct 2 1944 and ended June 18 1945 The subsequent session began July 9, 1945 for sophomores, juniors and seniors, and will begin on Sept 24, 1945 for freshmen The Dean is William Pepper, MD

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Henry Avenue and Abbottsford Road East Falls—Organized in 1850 Classes were graduated in 1852 and in all subsequent years except 1867 It has a faculty of 82 professors and 75 assistant lecturers and others a total of 157 At least three years of collegiate work are required for admission and candidates with a degree are given preference The curriculum covers four years of eight and one half months each Total fees are \$500 yearly The registration for 1944-1945 was 162, graduates 29 The last session for freshmen and sophomores began Sept 6, 1944 and ended June 2, 1945, for juniors July 10, 1944 to March 24 1945, for seniors April 24 1944 to Jan 10, 1945 The present session for fourth year students began April 23, 1945 and will end Jan 10 1946 The next session for first and second year students will begin Sept 10, 1945 and for third year students Sept 14 1945 and will end June 15, 1946 The Dean is Margaret D Craighill MD, who is on leave of absence for military service The Acting Dean is Marion Fry PhD

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Route and—Organized in 1886 as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh removing to the university campus in 1910 The first class graduated in 1887 Coeducation since 1899 The faculty is composed of 30 professors and 370 associates assistants and others a total of 400 Entrance requirements are two years of collegiate work The total fees are \$500 each year An accelerated program has been adopted The registration for 1944-1945 was 323, graduates, 77 The last session began on Oct 2 1944 and ended June 16, 1945 The subsequent session began on July 2, 1945 for sophomores, juniors and seniors, and will begin on Oct 1, 1945 for freshmen The Dean is William S McEllison, MD

SOUTH CAROLINA

Charleston

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA 16 Lucas Street Zone 16—Organized in 1823 as the Medical College of South Carolina The first class graduated in 1825 In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838 Classes were graduated in all years except 1862 to 1865 inclusive In 1913 by legislative enactment it became a state institution Coeducational from 1835 to 1912 when privileges for women were withdrawn Being reestablished

1917 It has a faculty of 40 professors and 51 associates, instructors and others, a total of 91, of which 38 are on a full time basis. The accelerated program has been adopted. Two years of collegiate work are required for admission during the war, but normally this requirement is three years. The total fees are \$422 each year for residents of South Carolina and \$622 for nonresidents of the state. The registration for 1944-1945 was 198, graduates, 48. The last session began Oct 2, 1944 and ended June 16, 1945. The subsequent session will begin June 25, 1945 for sophomore, junior, and senior classes, and Sept 27, 1945 for the freshman class. The Dean is Kenneth M Lynch, M D.

TENNESSEE

Memphis

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, 874 Union Avenue, Zone 3—Organized in 1876, at Nashville as Nashville Medical College. First class graduated in 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 140 professors and 162 assistants, instructors and others, a total of 302. Two years of collegiate work are required for admission. The B S degree in medicine is conferred at the end of the second year. The fees are \$120 quarterly. For residents of the state the charge is reduced \$50 each quarter. The registration for 1944-1945 was 495, graduates, 70. During the next academic year the quarters begin September, January, March and June. The Dean is O W Hyman, Ph D.

Nashville

MEHARRY MEDICAL COLLEGE, Eighteenth Avenue North and Meharry Boulevard, Zone 8 (For Negro Youth)—This school was organized in 1876 as the Meharry Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 49 professors and 30 instructors and lecturers, a total of 79. Two years' work in a college of liberal arts are required for admission. Tuition fees are, respectively, \$425, \$415, \$395 and \$405 each year. The curriculum covers four academic years of thirty-six weeks each. In September 1942, Meharry Medical College instituted the quarter system. Meharry initiated an accelerated schedule in July 1943. The registration for 1944-1945 was 253. The present session began on Dec 28, 1944 and will end Sept 16, 1945. The subsequent session begins on Sept 27, 1945. The Director of Medical Education is Murray C Brown, M D, the Dean is Michael J Bent, M D.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Twenty First Avenue South at Edgehill, Zone 4—This school was founded in 1874. The first class graduated in 1875. Coeducational since 1925. The faculty numbers 255. For matriculation, civilian students must be graduates of collegiate institutions of recognized standing or seniors in absentia, who will receive the bachelor degree from their college after having completed successfully one year of work in the school of medicine. Army and Navy students will be accepted on completion of the Army or Navy premedical program. The course covers four academic years of nearly nine months each, but due to the accelerated program, the four year course is now completed in three calendar years. The fees average \$465 per academic year. The registration for 1944-1945 was 199, graduates 54. The last session began Sept 18, 1944 and ended June 11, 1945. The subsequent session began for all classes on June 18, 1945 and will end March 9, 1946. The Dean is Ernest W Goodpasture, M D.

TEXAS

Dallas

SOUTHWESTERN MEDICAL COLLEGE OF THE SOUTHWESTERN MEDICAL FOUNDATION, 2211 Oak Lawn—Organized 1943. The first class graduated March 20, 1944. Coeducational since organization. It has a faculty of 126 professors (including associate and assistant professors) and 60 instructors and assistants or a total of 186. The medical college is operated on an accelerated program offering three trimesters of eleven weeks each per academic year so that each beginning student graduates in three calendar years. Tuition for the academic year is \$175 per trimester. Hospitalization and breakage charges are not included in this fee. Sixty to ninety semester hours are required for admission—depending on draft status. Registration for 1945 was 205. The present session began Jan 2, 1945 and will end Sept 15, 1945. The subsequent session will begin Oct 1, 1945. The Dean of Faculty is Tinsley Harrison, M D, the Dean of Students is Donald Shugher, M D.

Galveston

UNIVERSITY OF TEXAS SCHOOL OF MEDICINE, 912 Avenue B—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 72 professors (including associate and assistant professors) and 76 instructors and assistants, a total of 148. The Medical Branch is operating on an accelerated program offering four academic terms of nine months each for completion of the medical curriculum of thirty-six months. Seventy-two semester hours are required for admission. Ninety semester hours are required for the class to begin on or about Nov 1, 1946. The fees average \$92.50 per academic year, including health fees for medical care and hospitalization. The registration for 1944-1945 was 389, graduates 109. The last session began on June 28, 1944 for freshmen and ended May 5, 1945, other classes Aug 14, 1944 to June 2, 1945. The subsequent session for sophomores, juniors and seniors began on May 28, 1945, and will begin on Sept 13, 1945 for freshmen. The Vice Pres and Dean is Chauncey D Leake, Ph D.

Houston

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 509 Lincoln Street, Houston—Organized in 1900 at Dallas as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. The school was moved to Houston in 1943. Coeducational since organization. The first class graduated in 1901. Entrance requirements are 72 semester hours of collegiate work. The course covers four years of eight months each. An accelerated program was adopted beginning July 12, 1943. The fees are, respectively, \$423, \$413, \$403, \$428. The registration for 1944-1945 was 257. The present session began Nov 20, 1944 and ended July 16, 1945. The subsequent session for freshman class will begin Sept 3, 1945, other classes began July 30, 1945. The Dean is Walter H Moursund, M D.

UTAH

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE, Organized in 1906. Coeducational since organization. Four year curriculum established March 1943. An accelerated program has been adopted. Three years of collegiate work are required for admission. The faculty is composed of 11 professors, 23 associate professors, 25 assistant professors, 31 instructors, and 12 lecturers, a total of 102. The fees for each quarter are \$137.00, there is a nonresident fee of \$55 each year. The registration for 1944-1945 was 158, graduates 38. The last session began on Sept 13, 1944 and ended June 11, 1945. The subsequent session for sophomores, juniors and seniors began in June 1945, and will begin on Sept 12, 1945 for freshmen. Address communications to Administrative Committee.

VERMONT

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 56 professors and 45 instructors, and assistants, a total of 101. Three years of college work are required for admission. An accelerated program has been adopted. For residents of Vermont the tuition fee is \$400 each session. Nonresidents are charged an additional \$150 each session. A \$25 fee is charged for the doctor's degree. The last session began Sept 25, 1944 and ended June 20, 1945, registration 149, graduates 36. The subsequent session began July 5, 1945 and will end April 3, 1946. The Dean is William Eustis Brown, M D.

VIRGINIA

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session of 1920-1921. An accelerated program has been adopted. It has a faculty of 49 professors and 46 lecturers, instructors, assistants and others, a total of 95. Two years of college work are required for admission. For residents of Virginia the total fees average \$388 per academic year. Nonresidents are charged an additional \$50 each year. The registration for 1944-1945 was 265; graduates 65. The last session began on Sept 29, 1944 and ended June 23, 1945. The subsequent session began July 6, 1945 and will end March 23, 1946. The Dean is Harvey E Jordan, Ph D.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Twelfth and Marshall Streets—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 102 professors and 177

lecturers, instructors and others, a total of 279. Of this group 11 professors and 76 lecturers, instructors and others are on military leave. Two years of collegiate work are required for admission for those in the military services, three years of collegiate work are required for civilian students. An accelerated program has been adopted. Fees average \$384 per academic year. Nonresidents are charged an additional \$125 each year. The registration for 1944-1945 was 338, graduates 93. The last session began Oct 9, 1944 and ended June 16, 1945. The subsequent session for sophomores, juniors and seniors began on July 9, 1945, and will begin on Oct 1, 1945 for freshmen. The Dean is J P Gray, M.D.

WISCONSIN

Madison

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL, 418 North Randall Avenue, Zone 6—Organized in 1907. Gave only the first two years of the medical course until 1925, when the clinical years were added. Coeducational since organization. The requirement of three years of collegiate work for admission has been reduced to two years for the duration. An accelerated program has been adopted for the duration. Beginning with Sept 24, 1945 a class will be admitted once each year. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees average \$206 per academic year. An additional fee of \$200 per year is charged nonresidents. The registration for 1944-1945 was 288, graduates 70. The present classes began on Jan 1, 1945 for freshmen, sophomores and juniors, and will end Sept 22, 1945, for seniors, Aug 28, 1944 to June 26, 1945. The next session for all classes will begin on Sept 24, 1945. The Acting Dean is Walter J Meek, Ph.D.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE, 561 North Fifteenth Street—Organized in December 1912 by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 192. Three years of collegiate work are normally required for admission. During the duration students are admitted in accordance with the prescribed Army and Navy programs. The accelerated program includes three semesters each calendar year, an equivalent of four years of eight and a half months each in three calendar years. The fees average \$525.00 per academic year. The registration for the present session is 366. The session began May 7, 1945 and will end March 1, 1946. The subsequent session for sophomores, juniors and seniors will begin Feb 25, 1946, for freshmen June 24, 1946. The Dean is Eben J Carey, M.D.

CANADA

Alberta

UNIVERSITY OF ALBERTA FACULTY OF MEDICINE, Edmonton—Organized in 1913. Coeducational since organization. Has given the complete six year medical course since 1924. New course—three years premedical, four years medicine, one year undergraduate internship for medical degree—has been offered beginning with the session 1942-1943. The faculty includes 15 full time and 69 part time professors, instructors and assistants and others, a total of 84, of whom 18 are absent on war service. Tuition for the first and second years is \$255, for the third and fourth years \$265 and for the fifth and old sixth year \$263. The registration for 1944-1945 was 143; graduates 33. The next session (regular) will open on Sept 17, 1945 for the first, second and third year— and on Oct 1, 1945 (accelerated) for the fifth year. The Dean is Allan C Rankin, M.D.

Manitoba

UNIVERSITY OF MANITOBA FACULTY OF MEDICINE, Bannatyne Avenue, Winnipeg—Organized in 1883 as Manitoba Medical College, first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 36 professors and 103 instructors and assistants, a total of 139. Matriculation requirements include two years of collegiate work in the faculty of arts and science of a recognized university. An accelerated program was adopted but was discontinued with class entering in fall of 1943. The course extends over four years of eight months each and a hospital internship. The fees average \$254 yearly. The registration for 1944-1945 was 183, graduates 55. The next session for the first four years will begin on Sept 14, 1946, the fifth year began on July 16, 1945. The Dean is A T Mathers M.D.

Nova Scotia

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE, Morris Street Halifax—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university. First class graduated in 1872. Coeducational since 1871. It has a faculty of 45 professors and 36 demonstrators, lecturers and others, a total of 81, 14 of whom are in active service, and are on leave for the duration. Requires for matriculation two years of arts. The regular

medical course covers four years and a hospital internship of one year. Beginning in 1942 the last three years of the medical course were given under the accelerated plan. The final year internship was reduced to eight months. On Jan 6, 1944, Faculty decided to discontinue acceleration. The fees average \$317 yearly; \$250 additional registration fee payable by students outside the British Empire. The registration for 1944-1945 was 121, graduates 44. The next session for all classes will begin Sept 12, 1945. The Dean is H G Grant, M.D.

Ontario

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston—Organized 1854. First class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 62. Fees for the first year amount to \$243, and for the following years \$255. The course consists of five sessions of 30 teaching weeks, and a sixth year spent in a hospital designated by the University. The degrees of M.D., C.M. are not awarded until the end of the sixth year. The accelerated program has been abandoned, and the pre war time table has been resumed. Freshmen will be admitted annually. Registration for 1944-1945 was 224, graduates 43. The last session for freshmen began Sept 25, 1944 and ended May 5, 1945. The next session will open on Oct 1, 1945. The last convocation was held on Feb 15, 1945, and another class will graduate in February 1946. The Dean is G Spencer Melvin, M.D.

UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL, Ottawa Avenue London—Organized in 1881 as the Western University Faculty of Medicine, first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 101. The normal course of study covers two college years of nine months each and four years of ten months each in the Faculty of Medicine. The total fees to residents of Canada for the last four years respectively are \$356, \$356, \$360 and \$360, nonresidents are charged \$646, \$646, \$650 and \$650 for each of the last four years. The registration for 1944-1945 was 204, graduates 31. The last session for freshmen began Sept 25, 1944 and ended May 5, 1945. The next session begins for all years except the first and fifth years Sept 10, 1945, and ends June 15, 1946. The Dean is G E Hall, M.D.

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto 5—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University Medical Department, and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The B.Sc. (Med.) degree is conferred at the end of the third or sixth year. It has a faculty of 82 professors and 314 (including 87 on leave of absence for the duration of the war) lecturers, associates and others, a total of 396. The fees are \$240 for the first year, for the second \$315, \$315 for the third year, \$340 for the fourth and fifth years and \$368 for the sixth year. The registration for 1944-1945 was 657, graduates 119. The last freshman class began Sept 26, 1944 and ended May 12, 1945. The next first year class will begin the first premedical year on Sept 25, 1945, to be followed by the second premedical year in 1946-1947. The first, second, third and fourth medical years will begin on Sept 10, 1945 and end on June 1, 1946. Students in the final year graduated Feb 16, 1945. Students will graduate annually in June thereafter. The Dean is W E Galtie, M.D.

Quebec

MCGILL UNIVERSITY FACULTY OF MEDICINE, 3640 University Street, Montreal—Founded in 1823 as Montreal Medical Institution, became the Medical Faculty of McGill University in 1829, first class graduated under the university auspices in 1833. No session between 1836-1939 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop's College. Coeducational since 1919. Three years of collegiate work are required for admission. The faculty consists of 90 professors and 162 lecturers and others a total of 252. The total fees for each of the four medical years are \$391 plus \$100 for non-British subjects. The registration for 1944-1945 was 314, graduates 91. The next session will begin Sept 5, 1945 and will end June 1, 1946. The Dean is J C Meakins, M.D.

UNIVERSITY OF MONTREAL FACULTY OF MEDICINE, 2900 Mount Royal Boulevard, Montreal—Organized in 1843 as the Montreal School of Medicine and Surgery. In 1891 by Act of Parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by Act of Parliament in 1920. A class was graduated in 1843 and each subsequent year. Coeducational since 1925. The faculty numbers 200. The requirements for admission are: First, a B.A. degree (or its equivalent), second, one year premedical in the faculty of pure sciences (or an entrance examination on the premedical subjects). An internship is required for graduation. The fees average \$250 yearly. The registration for 1944-1945 was 307, graduates 56. The next freshman session will begin Sept 15, 1945 and end in June 1946. The Dean is Edmond Dube, M.D.

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec—The Quebec School of Medicine, organized in 1848, became in 1852 the Laval University Faculty of Medicine, first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 93. The fees for each of the medical years are \$200 for residents of Canada. Nonresidents are charged an extra fee of \$200 each year. The premedical requirement is a B.A. degree or its equivalent. The registration for 1944-1945 was 402, graduates 37. The next session will begin Sept 14, 1945 and will end in May 1946. The Dean is Charles Vézina, M.D.

APPROVED SCHOOLS OF THE BASIC MEDICAL SCIENCES

ALABAMA

Birmingham

MEDICAL COLLEGE OF ALABAMA—Established in 1943 as a division of the University of Alabama. Located in Birmingham in 1944. Approved for military trainees. In 1945 assumed title to Jefferson Hospital and Hillman Hospital, Birmingham, Alabama. The Medical College of Alabama cares for all indigent patients of the county and city, maintenance of which is paid to the University on a per diem basis by the County. In 1943 appropriation included one million dollars for the building of a new medical school which will be erected as early as possible after the war, and temporary quarters are now in the Jefferson and Hillman Hospitals. First instruction in The Medical College of Alabama started June 4, 1945, with junior class. On Oct 8, 1945, the School of the Basic Medical Sciences on the University Campus, established in 1920, and its faculty will be absorbed into the new Medical College of Alabama. The medical college is coeducational. Minimum entrance requirements for civilian students are three years of college work. The accelerated program started June 8, 1942, and deceleration begins in 1945 with the first freshman class. The faculty of The Medical College of Alabama at this time includes seventy three professors, instructors, assistants and others, of whom seven are absent in the armed forces. The Dean is Roy Rachford Kracke, M D.

MISSISSIPPI

University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE—Organized in 1903. Coeducational since organization. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. An accelerated program has been adopted. Entrance requirement is three years of collegiate work or ninety semester hours of credit. The faculty includes 9 professors, 2 assistant professors, 1 adjunct professor, 17 instructors, assistants and others, a total of 29. The total fees for the first year are \$375, and for the second year \$348. The registration for the present session is 58. The session began on Jan 29, 1945 and will end Sept 19, 1945. The next session will begin on Sept 25, 1945 and will end May 25, 1946. The Acting Dean is B S Guyton, M D.

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE—Organized at St Louis in 1845, was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Coeducational since 1872. An accelerated program has been adopted. The faculty includes 26 professors and 12 instructors, lecturers and others, a total of 38. The entrance requirements are sixty semester hours of collegiate work. The BS degree in medicine is conferred at the end of the second year. Total fees for the first year are \$266, for the second, \$224. The registration for 1944-1945 was 75. The last session began on Sept 16, 1944 and ended June 6, 1945. The subsequent session for sophomores began on June 9, 1945, and will begin on Sept 22, 1945 for freshmen. The Dean is Dudley S Conley, M D.

NEW HAMPSHIRE

Hanover

DARTMOUTH MEDICAL SCHOOL—Organized by Dr Nathan Smith in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Courses of the third and fourth year were discontinued in 1914. The faculty consists of 22 professors and 14 instructors, a total of 36. Army or Navy premedical curricula accepted for admission. An accelerated program has been adopted. Candidates for the AB degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The tuition is \$450 for each year. The registration for 1944-1945 was 45. The present session began on March 5, 1945 and will end Oct 24, 1945. The subsequent session for both classes will begin Nov 5, 1945. The Dean is Rolf C Syvertsen, M D.

NORTH CAROLINA

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department in Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910 when the clinical department at Raleigh was discontinued. Coeducational since

1914. Three years of college work are normally required for admission. Certificates are awarded on the completion of two years' work in medicine. The faculty is composed of 20 professors, 13 instructors, and 10 lecturers, a total of 43. The fees for each year are \$298 for the first year and \$323 for the second year for residents; for non residents an additional fee of \$100 per year. The registration for 1944-1945 was 99. The last session began on Sept 18, 1944 and ended June 9, 1945. The subsequent session for sophomores began on June 18, 1945, freshmen will be enrolled Sept 17, 1945. The Dean is W Reece Berryhill, M D.

NORTH DAKOTA

Grand Forks

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years work in a college of liberal arts are required for admission. (For the duration of the war about two years as per Army and Navy plans.) The BS degree in combined arts-medical course is conferred at the end of the second year. The faculty consists of 7 professors and 7 instructors, a total of 14. The fees are \$170 each year for resident students and \$340 for nonresidents. The registration, academic year Jan 2, 1945 to Sept 22, 1945, is 51. The subsequent session will begin Sept 24, 1945 and end June 8, 1946. The Dean is H E French, M D.

SOUTH DAKOTA

Vermillion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICAL SCIENCES—Organized in 1907 as the University of South Dakota School of Medicine. Present title in 1937. Coeducational since organization. Offers only the first two years of the medical course. Two years work in a college of liberal arts are required for admission. Students who complete the third year of premedical work in the College of Arts and Sciences at the University of South Dakota may apply the work of the first year of medicine to the AB degree. The BS degree is conferred at the end of the second year on those students who do not hold a combination (Arts and Sciences and Medicine Course) AB degree. The faculty numbers 18. An accelerated program has been adopted. The tuition is \$150 each year for residents and \$255 for nonresidents. The registration for 1944-1945 was 48. The last session began Sept 11, 1944 and ended June 3, 1945. The subsequent session for sophomores began June 11, 1945, freshmen will enroll on Sept 17, 1945. The Dean is Joseph C Ohlmacher, M D.

WEST VIRGINIA

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE—Organized in 1902, gives the first two years of the medical course, but agreement has been made for the transfer of 20 students each year to the Medical College of Virginia. Coeducational since organization. Entrance requirements are three years of collegiate work. The BS degree in medicine is conferred at the end of the second year. An accelerated program has been adopted. Faculty numbers 24. Fees for residents of the state are, respectively, \$255 and \$265, nonresidents, \$150 additional each year. The registration for 1944-1945 was 55. The last session began Sept 25, 1944 and ended June 16, 1945. The subsequent session begins for freshmen Sept 24, 1945 and sophomores began their work on June 25, 1945. The Dean is Edward J Van Liere, M D.

CANADA

Saskatchewan

UNIVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES, Saskatoon—Organized in 1926. Coeducational. Offers the first two years of the medical course. An accelerated program has been adopted. Two years of collegiate work are required for admission. The BA degree is conferred at the end of the second year. The medical faculty includes 8 professors and 7 lecturers and assistants, a total of 15. The fees are \$150 for the first year and \$200 for the second year. The registration for 1944-1945 was 49. The last session for freshman began Oct. 10, 1944 and ended May 11, 1945, for sophomores May 30 to Dec 22, 1944. The next session for freshmen and sophomores will begin Oct 1, 1945 and Sept 10, 1945 respectively. The Dean is W S Lindsay, M B.

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SATURDAY, SEPTEMBER 1, 1945

THE EDUCATIONAL NUMBER, 1945

This forty-fifth annual Educational Number of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION presents data on the last wartime year in medical education, although the effects of the war will still be felt for a long time. All but ten schools have now completed the cycle of four graduating classes in three calendar years. During these three years there have been 20,662 graduates in the United States, which is 5,127 more than in the three years preceding the war.

This contribution of medical schools to the war is especially noteworthy, since it came at a time when faculties were depleted in numbers and the demands on the time and energy of those remaining were excessive.

The statistics and information contained in this Educational Number of THE JOURNAL are a continuation of this valuable annual service of the Council on Medical Education and Hospitals of the American Medical Association. Many groups, agencies, institutions and individuals have contributed to this compilation. Sincere thanks are due them, not only from the Council and THE JOURNAL, but from the many thousands of people interested in medicine and medical education who find this publication useful.

NEW MEDICAL SCHOOLS

The past year has seen the expansion of the University of Alabama School of Medicine from the two year to the four year status, and the formulation of plans and the appropriation of funds for a new medical school by the University of Washington in Seattle. Progress thus far seems to promise well for the success of both programs.

Considerably less may be said of the prospects of some of the other proposed ventures into the extremely costly field of medical education. Every state operating a school of the basic medical sciences is now considering expansion to a full four year medical school course. Some of the reasons given for such programs are not always sound. They include the following: Great num-

bers of physicians are away on military duty. New schools are required to supply the overall increase of physicians needed in this country after the war. Rural areas have too few physicians. None of these is an adequate reason for attempting to establish new medical schools.

Too often the proposals fail to recognize that medical education is the most expensive form of professional training; that a four year medical school costs far more to operate than a school of basic medical sciences; that there is a strong trend toward the employment of full time clinical instructors; that a physician needs teaching experience and training in addition to his M.D. degree to qualify as a teacher, even in clinical fields; that medical school hospitals must be specially designed and equipped; that medical schools must carry out research; finally, that medical schools must be so located as to insure an adequate supply of patients and of teachers, including specialists.

This kind of faulty thinking and lack of knowledge about medical education can only lead to costly and futile ventures which fail to reach the desired ends.

THE SUPPLY OF MEDICAL STUDENTS

Before the war ended, it was generally known that there would be a deficiency in numbers or quality of the men enrolled in freshmen medical classes in the near future, because exceedingly few able bodied men have been permitted to carry on premedical studies. The ending of the war has not changed this situation; it merely permits an estimate of the duration of deficient enrolments. If inductions are stopped in time for large numbers of medical students to enroll in the fall college sessions—which seems unlikely—there may be an approximation to the normal number of qualified medical school applicants in 1947. This may not come until 1948, since there must be added to the one lost premedical year still another year, because of the general shift from the two year to the three year requirement for admission.

Most medical schools are returning to annual admissions, even though acceleration will be continued after admission, at least as long as there are military students in the schools. When and how the A. S. T. and Navy V-12 medical programs will be discontinued has not been announced. Unless there is coordination between the Army and Navy and unless the medical schools are consulted through the liaison committee of the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges, a great deal of needless confusion is certain to result in this process.

Another factor is the rate of demobilization. Every indication is that this cannot be sufficiently rapid to return many qualified premedical students to their civilian studies until late winter or spring unless a special

adjustment is made. The Vannevar Bush report to the President recommends that qualified premedical (and other science) students "be ordered, by name, to duty in the United States as students." This plan "should be adopted as the considered policy of the armed forces, and no desire of a commanding officer . . . should be allowed to interfere with the operation of the policy." Such assignment "would be no disruption of plans for the discharge of soldiers . . ." because, in the course of the assignment to premedical studies on active duty, the discharge of such students "would occur in accordance with the already established rating scale."

Mr. Paul V. McNutt, chairman of the War Manpower Commission, announces a federal program with an immediate goal of the registration of qualified veterans in medical and premedical schools for courses starting this fall. Provided the veterans are selected by the medical schools, this program is in keeping with the objectives of the Council on Medical Education and Hospitals of the American Medical Association to encourage the development of adequately trained physicians to the end that the country will be satisfactorily supplied with medical service.

Mr. McNutt's release properly emphasizes the point that veterans must be suitably equipped with educational and other prerequisites to become future physicians; the number of medical students which can be accepted in any one year is also conditioned by the facilities available.

With the war now over, such replacements as are still needed for the armed services can well come from inductees not qualified to prepare for medical and scientific careers, and men on duty who should undertake such studies ought to be returned at the earliest moment.

PREVENTION OF PELLAGRA

Casal in 1735 argued that pellagra was due to some toxic or infectious factor in corn. Then in 1925 Goldberger¹ reported evidence that the disease is presumably due to inadequate amounts of some essential nutritional factor in corn. Elvehjem and his associates² afterward isolated this essential factor and identified it as nicotinic acid. In confirmation of the Goldberger theory nicotinic acid was afterward found to be clinically effective against blacktongue in dogs and against many (but not all) pellagra symptoms in man.

As analytic methods were perfected, the deficiency theory was challenged. On a dry weight basis corn contains as much nicotinic acid as eggs, milk, polished rice, oats or rye, and often more. The presence of an unknown pellagra producing toxin in corn was thus indicated. In confirmation of this toxic theory Handler³

of Duke University found that the blacktongue syndrome in dogs is more readily produced on diets containing corn than with purified rations which contain much less nicotinic acid. Krehl and his associates⁴ of the University of Wisconsin afterward noted that corn exerts a pronounced retardation of growth in rats which is counteracted by nicotinic acid. Polished rice or rolled oats, both of which contain significantly less nicotinic acid than corn, did not produce depression of growth when fed under identical conditions.

In order to determine the mechanism of this depression of growth, Krehl⁵ made careful studies of the effects of corn grits on the nicotinic acid requirements of dogs. The experiments were conducted with growing dogs which had been kept since weaning on a synthetic diet low in nicotinic acid. Corn grits were incorporated in the synthetic ration at a level of 60 per cent at the expense of sucrose. Enough nicotinic acid was then added to adjust the level to 2 mg. per hundred cubic centimeters for one group of dogs and to 5 mg. per hundred cubic centimeters for a second group. Based on a daily consumption of 35 Gm. per kilogram, the two groups received each day 0.42 and 1.05 mg. of nicotinic acid per kilogram of body weight. The lower figure was at least 25 per cent higher than the minimum nicotinic acid requirement for growing dogs.⁶

By the end of fifty-one days the average growth of the dogs on the higher level of nicotinic acid was 77 Gm. per day. For the group at the lower nicotinic acid level the average daily growth was 37 Gm. In a control group of dogs fed a ration containing only 36 per cent corn grits the growth rate averaged 65 Gm. per day at the lower level. This was quite comparable to the 77 Gm. daily average with dogs maintained at the higher (luxury) level of nicotinic acid.

From these and similar data Krehl concludes that corn significantly increases the nicotinic acid requirement of growing dogs. The simplest explanation of this effect would be to assume that corn contains some relatively indigestible substance (or factor) which combines with dietary nicotinic acid so as to prevent its absorption from the digestive tract. This would be in line with the known effects of charcoal, liquid petrolatum and egg white. "Avidin," the undigestible factor in egg white, has a specific affinity for biotin. Fed in sufficiently large amounts, "avidin" causes lethal biotin starvation. Other more complex theories of the antivitamin effects of corn are suggested by the known synthesis or destruction of nicotinic acid by the intestinal flora. While corn tends to increase the nicotinic acid requirement of dogs, Krehl found that other foods, such as milk, casein and glucose, which contain much

1. Goldberger, Joseph, and Tanner, W. F.: *Pub. Health Rep.* **40**: 54 (Jan. 9) 1925.

2. Elvehjem, C. A.; Madden, R. J.; Strong, F. M., and Woolley, D. W.: *J. Biol. Chem.* **123**: 137 (March) 1938.

3. Handler, Philip: *Proc. Soc. Exper. Biol. & Med.* **52**: 263 (April) 1943.

4. Krehl, W. A.; Teply, L. J., and Elvehjem, C. A.: *Science* **101**: 283 (March 16) 1945.

5. Krehl, W. A.; Teply, L. J., and Elvehjem, C. A.: *Proc. Soc. Exper. Biol. & Med.* **55**: 334 (April) 1945.

6. Schaefer, A. E.; McKibbin, J. M., and Elvehjem, C. A.: *J. Biol. Chem.* **144**: 679 (Aug.) 1942.

less nicotinic acid, tend to decrease this requirement. Krehl believes that this reduced nicotinic acid requirement is due to the establishment of an adequate nicotinic acid synthesizing intestinal flora.

Summarizing his results, Krehl concludes that on a heavy corn grit diet the nicotinic acid requirements of man are probably at least three times the requirements for comparable growth on a synthetic diet or whole milk ration. From this he suggests that the enrichment of corn meal and other milled corn products should be increased to include considerably more nicotinic acid than is at present thought necessary. Krehl's data also suggest that the same prophylactic effects could be obtained by increasing the amount of milk or milk products in daily human diets.

VITAMIN IMBALANCE

With the introduction of pure vitamins, particularly members of the B complex, interest in the possibility of interrelation of vitamin activity has been stimulated. In the clinical literature are suggestions of the possible interrelation or antagonism of some of the B vitamins. Pellagrins often show symptoms of thiamine or riboflavin deficiency after receiving nicotinic acid; the added niacin may either increase the thiamine or riboflavin requirement of the pellagrin or actually antagonize the effect of the small amounts of the other B vitamins present. In addition, the possibility of producing an improper balance of vitamins should also be considered. This may now be easy to achieve, since there are many pure preparations of vitamins available allowing for the administration of unphysiologic doses of a given vitamin.

Early attempts to produce a deficiency of one of the B vitamins by overdosing with other members of the complex have not met with much success. Recently Richards¹ has demonstrated that overloading the diets of rats on a diet low in vitamin B₆, pyridoxine, with large amounts of thiamine caused vitamin imbalance, with the consequent production of symptoms of pyridoxine deficiency—seizures of epileptiform nature which made its diagnosis relatively simple. Other investigators have shown that these symptoms are present in young rats nursed by mothers that consumed a ration poor in pyridoxine. By the administration of pyridoxine to the mother after parturition, the seizures could be prevented in the young. The work illustrates strikingly that a pyridoxine deficiency is caused in rats by feeding large doses of thiamine. The possibility of the antagonism of other B factors by excess of thiamine may exist, but the symptoms of pyridoxine deficiency overshadowed other possible deficiency signs.

Najjar and Holt² have shown that there is a fluorescent substance in the urine of normal subjects but lacking in the urine of pellagrous patients. Later Najjar

and his associates³ showed that the fluorescent factor appeared to be a derivative of nicotinamide, the butyl ether of N-methylnicotinamide alpha carbinol. Thus the amount of fluorescent material in the urine parallels the amount of nicotinamide or nicotinic acid in the urine. Recently Singal, Hall and Sydenstricker⁴ observed that the amount of fluorescent substance in the urine was increased by the administration of pyridoxine to normal dogs and to those maintained on a diet deficient in niacin. This signifies that the amount of nicotinic acid in the urine is increased. The administration of large doses of pyridoxine also increased the severity of the nicotinic acid deficiency.

With more knowledge of the interactions of vitamins, the possibility of vitamin imbalance must be considered. Indiscriminate administration of large amounts of individual members of the B complex, particularly thiamine, may lead to other vitamin deficiencies. The addition of vitamins as in the fortification of foods should also be considered in regard to the possibility of vitamin imbalance. Balancing of the vitamins may be of considerable clinical importance, particularly in diets of those in low economic levels or in the highly restricted diets of food faddists or patients with allergy.

Current Comment

CHILD SPACING AND STILLBIRTHS

Eastman¹ recently suggested that youth is a better ally than child spacing to the health of the mother and her child. This conclusion was based on an analysis of over 5,000 Baltimore births. Now, however, Yerushalmy,² who has made a statistical study of more than 7 million births, comes to a different conclusion. He found that the lowest stillbirth rates do not occur among the youngest mothers where "youth" might be expected to be the dominant factor. The rate is relatively high for mothers between the ages of 15 and 19 years (33.7) and drops to 23.3 for mothers between 20 and 24, increasing thereafter with the age of the mother to 56.2 in the 40 to 44 age bracket. The rate of stillbirths varies also according to the number of children born: there is a definitely lowered stillbirth rate for the sixth child of a mother aged 30 than for the sixth child of a mother aged 20. The eighth child born to a woman by the time she is 25 has a much higher stillbirth rate than a fourth child born to a woman the same age. Yerushalmy did not determine how much time should elapse between the birth of one baby and the beginning of another pregnancy by women of different ages and number of children. However, his observations emphasize that a period of rest and recuperation is essential to the average woman and that babies born either too close

3. Najjar, V. A.; White, Virginia, and Scott, D. B. M.: *Bull. Johns Hopkins Hosp.* 74: 378 (June) 1944.

4. Singal, S.; Hall, W. K., and Sydenstricker, V. P.: *Am. Chem. Soc. 108th meeting, Abstracts of Papers*, 7 B, 1944.

1. Eastman, Nicholson J.: *The Effect of the Interval Between Births on Maternal and Fetal Outlook*, *Am. J. Obst. & Gynec.* 47: 445 (April) 1944.

2. Yerushalmy, Jacob: *Human Biology*, May 1945.

1. Richards, Marion B.: *Brit. M. J.* 1: 435 (March 31) 1945.

2. Najjar, V. A., and Holt, L. E., Jr.: *Science* 93: 20 (Jan. 3) 1941.

together or at too wide intervals have less chance of being born alive than those spaced at moderate intervals. Furthermore, Yerushalmy concludes that the interval between births is a basic factor in the incidence of stillbirth. Although at first glance the Eastman and Yerushalmy studies appear to give conflicting results, it is not certain that they cannot be reconciled. Probably the age of the mother, child spacing and total number of children would all influence not only the incidence of stillbirths but also the maternal health.

RESIDENCIES FOR PHYSICIAN VETERANS

For many months the Committee on Postwar Medical Service and the various American boards in the specialties have been working with the Council on Medical Education and Hospitals of the American Medical Association to provide additional residency places of high quality for returning veterans seeking such work. At present there are nearly two thousand places available in excess of those open in 1943. These have already been approved by the Council, after inspection of the facilities, and are acceptable to the American boards. They will go a long way toward meeting the increased postwar demand for advanced hospital training. Many more hundreds of openings will be available by the time the peak of demobilization is reached. There is every indication that hospitals and medical schools will meet the educational needs at this level. There still remains the necessity for the organization of more full time courses of three months' duration of these two kinds: a general review of the major fields of clinical medicine for the general practitioner and review courses in the various specialties for physicians whose interests are primarily in one field and who wish a refresher course to bring them up to date.

EXAMINATION OF AIRPLANE PILOTS

Experience in the medicine of aviation in the United States before the war led experts who are members of the Aero Medical Association and of the medical division of the Civil Aeronautics Administration to establish high standards of qualification for the examination of airplane pilots. On June 1 the Civil Aeronautics Administration cut the examination of private and student pilots to a minimum. Previously only qualified examiners were permitted to make such examinations. Now the examinations may be made not only by general practitioners but even by osteopaths who happen to be licensed to practice medicine in any of the states. This reversal of policy is so fraught with danger to the flying public and to the millions of persons who will be hazarding their lives in flight in the postwar period that experienced examiners now qualified particularly in this field threaten to discontinue their connection with the CAA. The Congress of the United States has placed on the CAA the duty of regulating and controlling aviation so as to "assure the highest degree of safety." By this backward step a federal agency is apparently permitting selfish and political pressures to force on it a disregard of the high obligation committed to it by the Congress.

THE MEDICAL SCHOOL CURRICULUM

The present time is most propitious for serious curriculum revision. In recent years virtually no changes have been made by most schools except for the unstudied addition of required hours, which is the easiest and least rational kind of change. The medical school curriculum should be completely overhauled, bearing in mind the almost universal need for reducing the didactic assignments throughout the four years, allowing students free time for special interests, reducing the mass of detail required of students, integrating the work of the various departments intelligently, utilizing the case method of clinical instruction more extensively, elevating the clinical student to a position of dignity above that of a school boy, instilling in students an impelling curiosity about the unknown and incorporating studies of medical economics and the distribution of medical care into medical education. Unless progress is made along these lines, medical education will continue to lag far behind the advances which have been made in general education in recent years.

CELLULAR PATHOLOGY

Paul Klemperer¹ reviews briefly in a recent article the results of certain investigations in cellular pathology. As yet results of immediate practical value have not come from the study of the intracellular network known as the Golgi apparatus. It seems clear, however, that this apparatus is definitely related to the functions of exocrine as well as endocrine gland cells in that its size increases in the course of their secretory activity. More strikingly significant is the disappearance of the granules in the B cells of the islands of Langerhans in experimental alloxan diabetes. The outcome of the study of the granules in the human pancreas under various conditions will be of much interest. The demonstration of the changes in the cells of the hypophysis on removal of other endocrine glands or on hormonal injection is a second example of morphologic study in experimental endocrinology. Klemperer next turns attention to the juxtaglomerular neuromyoarterial apparatus, composed of epithelioid cells, concerning the function of which, whether secretory or regulatory, there is difference of opinion. The visual demonstration of intracellular enzyme activity is another phase of cell morphology. Mention may be made only of the results bearing on the formation of pigment in the body and on phosphatase activity of certain cells. In respect to the latter, further study of human material promises valuable results. Of the structural changes in avitaminosis Klemperer discusses the keratinizing metaplasia in vitamin A deficiency and the failure of connective tissues to produce and keep up intercellular substances in vitamin C deficiency. This effect of C deficiency is of great interest in relation to the alterations in the connective tissue in acute rheumatic fever, disseminated lupus and scleroderma. This review, though limited to particular lines of work, illustrates well the importance that cellular pathology maintains in medical science.

1. Klemperer, Paul: Recent Advances in Cellular Pathology, *J. Mount Sinai Hosp.* 12: 416 (May-June) 1945.

MEDICINE AND THE WAR

ARMY

PLASTIC EYE CENTERS FOR ARMY MEDICAL DEPARTMENT

Thirty installations, twenty-nine general hospitals and one regional hospital, have been designated plastic eye centers for the Army Medical Department. All existing laboratories have adequate space, personnel and supplies, with the exception of one general hospital, and action is being taken to expand the facilities so that production can be increased at this establishment. Approximately 5,100 plastic artificial eyes were made and fitted up to June 30, 1945. In addition, the plastic eye laboratories have made conformers, eye spheres and other appliances for the eye clinics.

Experimental work is still being carried on in the plastic artificial eye program. Technicians are continually endeavoring to improve and give these plastic eyes greater mobility and lessen abrasion. Three teams of officers and enlisted men who are experienced in making plastic artificial eyes are overseas, and four additional teams are now being trained in this work.

AWARD OF MERITORIOUS SERVICE UNIT PLAQUE

The Meritorious Service Unit Plaque was recently awarded to the Medical Detachment, 271st Infantry Regiment, 69th Infantry Division, United States Army, "for superior performance of duty in the accomplishment of exceptionally difficult tasks from Feb. 11, 1945 to May 7, 1945 in Belgium and Germany. The Medical Detachment has demonstrated its unusual skill in coping with intricate and difficult situations. Through its brilliant professional attainment the Medical Detachment has achieved an enviable record. One thousand one hundred and fifty-five soldiers have been treated at aid stations without the occurrence of a single death. Casualties from the battlefield were evacuated in the record time of ninety-two minutes. Despite the most severe weather conditions and heavy enemy action, the Medical Detachment displayed the greatest adaptability and resourcefulness. The ability, courage and devotion to duty displayed by the Medical Detachment reflect the highest credit on this unit and the armed forces of the United States." The commanding officer of the medical detachment is Major Leo Litter, formerly of New York.

DEDICATE MADIGAN GENERAL HOSPITAL

The Madigan General Hospital, Tacoma, Wash., was recently dedicated. Formerly Fort Lewis Hospital, the Surgeon General requested on May 18, 1944 that this installation be converted to a general hospital for the medical department. Madigan General Hospital is named for Col. Patrick S. Madigan, formerly of the medical corps of the United States Army. He died May 8, 1944 while stationed at Fort Belvoir, Virginia. Colonel Madigan graduated from Georgetown University School of Medicine, Washington, D. C., in 1912 and was commissioned in the Medical Corps of the Regular Army on Oct. 21, 1917.

38th GENERAL HOSPITAL AWARDED PLAQUE

The 38th General Hospital of the Jefferson Medical College, now in Cairo, Egypt, was recently awarded the Meritorious Service plaque. The citation was made by the commanding General of the African Middle East Theater, who cited the unit for superior performance of duty in the accomplishment of exceptionally difficult tasks and for the maintenance of a high standard of discipline from January 1944 to July 1944. The 38th Hospital Unit is in command of Lieut. Col. Robert B. Nye.

ARMY AWARDS AND COMMENDATIONS

Major Francisco A. Rosete

The Bronze Star was recently awarded to Major Francisco A. Rosete, formerly of Chicago. A captain in rank during this period, and responsible for the 55,000 Filipino civilians, Major Rosete organized and supervised twenty-three dispensaries and eight hospitals in the northern Luzon sector. Because the Japanese had furnished no medicines or medical aid for these civilians during their three years of occupation, disease was rampant with various types of maladies, many of them in the last stages owing to the lack of previous attention. Major Rosete, with untiring energy and drive, obtained the necessary medicines and equipment for taking care of these diseases, and through his initiative and efforts they have been cured and are on the decline. In performing his duties he has worked long hours, tirelessly tending the bodily ills of the diseased civilians and frequently with little or no help from other trained personnel.

Besides curing diseases, part of his work has been that of prevention. He has been a crusader in cleaning up filth and breeding grounds of diseases. He has tried to educate the civilian population to maintain higher standards of sanitation and has appointed and supervised sanitary inspectors who require the civilians to improve their living conditions through this preventive measure.

"In curing and preventing diseases among the civilians, Major Rosete has reduced the danger of infection and diseases among the members of the 33d Infantry Division, because of the fraternization between the civilians and the military. In this respect he has aided the 33d Division in the accomplishment of its tactical missions," the citation read in part. Dr. Rosete graduated from Loyola University School of Medicine, Chicago, in 1938 and entered the service Aug. 26, 1942.

Captain Joseph H. Hillman

The Bronze Star was recently awarded to Capt. Joseph H. Hillman, formerly of New York, "for meritorious service in connection with military operations against the enemy as anesthesiologist, 3d Auxiliary Surgical Group, from June 7, 1944 to Nov. 17, 1944 in France, Belgium and Germany. Since his arrival on the European continent Captain Hillman has displayed marked proficiency and professional skill in the administration of innumerable anesthetics and in the improvisation of equipment which permitted the performance of major surgical operations in a division clearing station. By his demonstration of outstanding medical ability and personal initiative, Capt. Hillman reflected credit on himself and the military service." Dr. Hillman graduated from the New York University College of Medicine, New York, in 1930 and entered the service Aug. 1, 1942.

Major John Erbes

Major John Erbes, formerly of Windsor, Colo., has been the recipient of a Distinguished Service Cross, four Silver Stars and a Bronze Star. As a battalion and regimental surgeon, Major Erbes served in the heat of every major European battle from Africa to Germany with the Panzer tamer "Hell-on-Wheels" 2d Armored Division. Decorated the first time in Africa with a Silver Star for "stealing a half-track, loading it with wounded and running them to safety while Nazi tanks fired and chased us all over the desert," he established a standard pattern for himself which was to distinguish his actions in France, Belgium and Germany. The nation's second highest military award, the Distinguished Service Cross, was won for another courageous rescue near Aachen. Leading three men into an open bullet and shell scourged field where a dozen wounded lay surrounded by

Germans, Erbes bore a Red Cross flag, in accordance with Geneva conference rules. "Artillery fire continued, however," he stated, "and I was just about to dive into a hole when some guy with a machine gun cut down on me, sending bullets through the flag and chipping the staff. It furnished the impetus to really put me in that hole. After a while most of the small arms fire died down, but the artillery kept pounding." Major Erbes recruited "help from the foxholes" as litter carriers and with them made four 1,600 yard trips through the avalanche of artillery fire. Some of the men were so seriously wounded that he was forced to perform amputations with only a bandage scissors. Dr. Erbes graduated from the University of Nebraska College of Medicine, Omaha, in 1939 and entered the service July 1, 1941.

Brigadier General John A. Rogers

The Distinguished Service Medal was recently awarded to Brig. Gen. John A. Rogers, formerly of Washington, D. C. Accompanying the award was the citation "As Surgeon of the First Army in France, Belgium and Germany from June 1944 to April 1945 he demonstrated rare organizational ability and exceptional judgment in his superior handling of the First Army's medical service. Energetically pursuing the army commander's principle of placing hospitals as near the line of combat as possible, he overcame with highly ingenious methods the difficulties presented by the greatly augmented army racing across western Europe and covering an unusually extended front. In cooperation with the Air Forces and Navy he developed highly effective procedures for evacuating the wounded by aircraft and boats. Despite all obstacles he furnished to First Army casualties a medical service that was exceptional in efficiency, as shown by the low mortality rate attained. By his keen professional ability and tireless devotion to duty he contributed directly to the saving of thousands of lives and to the combat effectiveness of the First Army." Dr. Rogers graduated from Tufts College Medical School, Boston, in 1914 and has been in the service since Dec. 8, 1917.

Captain Joseph J. Healy Jr.

Capt. Joseph J. Healy Jr., formerly of Brooklyn, flight surgeon with the 417th Bomb Group "Sky Lancers," an attack bomber unit of the Fifth Air Force in the Philippines, was recently commended for aiding in the rescue of two survivors of an airplane crash. While the Sky Lancers were stationed in New Guinea, one of their A-20 Havoc bombers made a crash landing in the jungles of the interior. Captain Healy volunteered to participate in the ground rescue of the two surviving members of the crew. He and his party made their way inland to within 2 miles of the location of the crashed plane by traveling up a tropical river in a launch, after which they proceeded overland to reach the plane, which was in the middle of a sage swamp. Even with the help of numerous natives, it took two days to reach the survivors, for there were almost insurmountable barriers of waist deep swamp, a thick overgrowth of sage palms 15 to 20 feet in height, almost impenetrable undergrowth, tropical downpours, and swarms of mosquitoes. Dr. Healy graduated from the Long Island College of Medicine, Brooklyn, in 1940 and entered the service Aug. 18, 1942.

Captain John F. Schlechter

The Soldier's Medal was recently awarded to Capt. John F. Schlechter, formerly of Brooklyn. Accompanying the award was the citation "for heroism at St. Dizier, France, on Dec. 22, 1944. An A-20 aircraft skidded head on into a parked P-47 aircraft loaded with Napalm bombs, which were torn loose and lay open and exposed around the wreckage in constant danger of exploding. On noticing the navigator imprisoned and seriously injured in the nose of his ship, Captain Schlechter, heedless of his own safety, rushed in, freed the navigator, carried him to safety and administered medical attention. Captain Schlechter's intense desire to render aid, no matter at what the cost or odds to himself, reflects credit on himself and is in keeping with the highest traditions of Army Air Forces." Dr. Schlechter graduated from the New York Medical College, Flower and Fifth Avenue Hospitals, New York, in 1941 and entered the service Aug. 20, 1942.

Captain Morton H. Rose

Capt. Morton H. Rose, formerly of Washington, D. C., was recently awarded the Bronze Star "for heroic achievement in connection with military operations against the enemy on April 13, 1945 in Germany." Dr. Rose graduated from George Washington University School of Medicine, Washington, D. C., in 1942 and entered the service on March 13, 1943.

Major Pasquale P. Franzese

Major Pasquale P. Franzese, formerly of Brooklyn, was recently awarded both the Bronze Star and the Unit Citation for meritorious service against the enemy at Kiriwina, Trobriands; Cape Gloucester and Talasea, New Britain; Aitape, British New Guinea, and Wakde-Toem, Dutch New Guinea. With complete disregard for his own safety he supervised the evacuation of casualties from areas under enemy fire, thus accomplishing rapid and life-saving hospitalization of these casualties. Major Franzese served as commanding officer of medical units that saw eighteen months' continuous service in combat areas. He graduated from Long Island College of Medicine, Brooklyn, in 1939 and entered the service Feb. 21, 1941.

Captain J. H. Gosman

The Legion of Merit was recently awarded to Capt. J. H. Gosman, flight surgeon, formerly of Indianapolis, for the development of an electrical headset for the treatment of ear trouble among combat fliers. This headset has shortened the period of treatment from three to five days. He was also cited for his work in the fields of sanitation and immunization. Dr. Gosman graduated from Indiana University School of Medicine, Indianapolis, in 1938 and entered the service March 27 1941.

Captain John S. Morawski

The Bronze and Silver stars were recently awarded to Capt. John S. Morawski, formerly of Brooklyn. The Bronze Star was awarded for heroism during a ten day period in September 1944 when his battalion was under constant artillery and mortar fire. Unmindful of personal risk, Captain Morawski went to the rescue of wounded personnel despite shells falling in their vicinity. The Silver Star was awarded for gallantry in action when Captain Morawski climbed into a disabled tank and supervised the evacuation of the wounded. One soldier was badly in need of plasma, which was successfully administered by the captain despite the shell fire about him. Dr. Morawski graduated from the Long Island College of Medicine, Brooklyn, in 1942 and entered the service July 16, 1943.

Captain Edmund R. Kinne

The Bronze Star was recently awarded to Capt. Edmund R. Kinne, formerly of Middletown, N. Y., "for heroic achievement in Germany, February 9. During the assault for the initial bridgehead across the Sauer River into the Sigfried Line, Captain Kinne of the Medical Department and two enlisted men volunteered to establish an advance aid station to care for the wounded. Crossing the river in a boat they worked continuously for thirty-six hours despite heavy shell fire to sustain life in the wounded until they could be ferried across the river. While performing these duties Captain Kinne was wounded by shell fragments. Dr. Kinne graduated from the College of Medical Evangelists in 1944 and entered the service in January 1944.

Major Edgar A. Lawrence

The Air Medal was recently awarded to Major Edgar A. Lawrence, formerly of New York. According to the citation "The Air Medal is hereby awarded for meritorious achievement while participating in more than one hundred hours of combat aerial flight over territory in Burma and China where exposure to enemy ground and air fire was probable and expected. This display of devotion to duty and a degree of efficiency above and beyond that usually expected reflects credit on this officer and on the Army Air Forces of the United States." Dr. Lawrence graduated from Johns Hopkins University School of Medicine, Baltimore, in 1933 and entered the service June 1, 1942.

NAVY

NAVY AWARDS AND COMMENDATIONS

Commander Charles W. Letcher

The Silver Star was recently awarded to Commander Charles W. Letcher, formerly of Wilkes-Barre, Pa., for "distinguishing himself conspicuously by gallantry and intrepidity while serving as medical officer on board an aircraft carrier. His vessel was directly engaged in supporting the landing of troops in the Southwest Pacific Area, when enemy air attack caused serious battle damage to the ship. An enemy plane and bomb hit and damaged sick bay, necessitated its evacuation and seriously wounded many of the personnel. Although he was painfully wounded, he disregarded his own injury and efficiently directed the orderly evacuation. With untiring devotion to duty, he continued to direct the entire process of caring for the casualties. His own skilful medical and surgical administration unquestionably saved the lives of a number of seriously wounded and contributed to the quick recovery of many others. By his knowledge of his profession, his leadership and courage he set an inspiring example which was in keeping with the highest traditions. . . ." Dr. Letcher graduated from Jefferson Medical College of Philadelphia in 1930 and entered the service in January 1940.

Lieutenant Commander Roy Randolph Powell

The Navy and Marine Corps Medal was recently awarded to Lieut. Comdr. Roy Randolph Powell, formerly of White Plains, Va. The citation accompanying the award read "for distinguishing himself by heroism while serving as senior medical officer aboard an aircraft carrier during the action of Nov. 25, 1944. Lieut. Comdr. Powell, with flight deck fires above him and hangar deck fires below him, heroically, with disregard for his own personal safety and unselfish devotion to

duty, continued to treat casualties in the main battle dressing station, menaced by fire and suffocation, until all casualties were treated and safely removed to sick bay. His fearlessness, courage, utter disregard of his own safety and devotion to duty were at all times in keeping with the highest traditions of the United States Naval Service." Dr. Powell graduated from the University of Virginia Department of Medicine, Charlottesville, in 1935 and entered the service Jan. 16, 1937.

Lieutenant Commander Frank A. Patti

The Legion of Merit was recently awarded to Lieut. Comdr. Frank A. Patti, formerly of Leonia, N. J., "for distinguishing himself by exceptional meritorious conduct in performance of outstanding services in operations against the enemy in the battle of Leyte." Lieutenant Commander Patti is chief medical officer on the U. S. S. *Santee*. He graduated from the Long Island College of Medicine, Brooklyn, in 1931 and entered the service May 2, 1942.

Lieutenant L. Vincent Strully

Lieut. L. Vincent Strully, formerly of New York, received a commendation for outstanding devotion to duty and meritorious service in preparation for the invasion of France. "His performance was in accordance with the highest traditions of and reflects great credit on the U. S. Naval Service." Dr. Strully graduated from the Long Island College of Medicine, Brooklyn, in 1938 and entered the service July 1, 1943.

Lieutenant Glen G. Rice

The Silver Star was recently awarded to Lieut. Glen G. Rice, formerly of Seattle. Dr. Rice graduated from the University of Oregon Medical School in 1942 and entered the service July 10, 1943. He also shares in a presidential unit citation and was the recipient of the Purple Heart.

MISCELLANEOUS

QUININE BEING RELEASED FOR CIVILIAN MEDICINAL PURPOSES

The War Production Board recently announced that a limited amount of quinine is being released from the government stockpile for civilian antimalarial and other essential medicinal needs. Allocations of quinine, including the newly released quantities, will be made by WPB in accordance with the provisions of order M-131, governing cinchona bark and cinchona alkaloids. Wholesalers, distributors and processors are required to file form WPB-2945, stating the medicinal dosage form in which the quinine will be sold.

Authorization at the present time will be limited to use of quinine for filling physicians' prescriptions and for the manufacture of capsules. Physicians and patients who require quinine medication should purchase their supplies from local druggists or other sources of bulk quinine for prescription use as well as pills or tablets.

Because of an improved supply, totaquine may now be used for all medicinal and other purposes, WPB stated. Formerly totaquine, which represents the total alkaloids of cinchona bark, was authorized for antimalarial use only.

UNRRA COMMISSION ON QUARANTINE HOLDS MEETINGS

A series of meetings was recently held at UNRRA headquarters of its expert Commission on Quarantine for the purpose of making recommendations in regard to the control of yellow fever. One of the main problems discussed was the further delineation of endemic yellow fever areas in Africa and the Western Hemisphere. The recommendations of the Quarantine Commission will be acted on by the Standing Technical Committee on Health at a meeting in Washington early this fall. The control of yellow fever, including the delineation of endemic yellow fever areas and the laying down

of standards for the manufacture of yellow fever vaccine, is a responsibility placed on UNRRA by the International Sanitary Convention for Aerial Navigation of 1944. Dr. G. H. de Paula Souza of Brazil, chief of the Epidemic Control Section of UNRRA's Health Division, is secretary to the commission.

DENTAL AND MEDICAL LITERATURE NEEDED

The Medical and Surgical Relief Committee of America (420 Lexington Avenue, New York 17) has received several requests from organizations operating in France and Italy for dental and medical literature of any nature—magazines, pamphlets or books—written within the last five years. News of scientific progress made since 1940 has been inaccessible to European professional men, and in the interests of science, health and good will it is hoped that all those who can spare any such medical material will send it to the Medical and Surgical Relief Committee headquarters.

The following eight textbooks have been requested for the use of the Medical Nutrition Mission in Italy: .

- Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, seventh edition (R. P. Strong).
- Manual of Clinical Mycology (Martin Conant et al.).
- Pediatric Dietetics, 1937 (Saxl).
- Brennermann's Loose Leaf Pediatrics, four volumes (Nelson).
- Physiological Basis of Medical Practice (Best and Taylor).
- Clinical Nutrition and Dietotherapy (McLester).
- Oral Diagnosis (Miller).
- Quantitative Clinical Chemistry, two volumes (Peters and Van Slyke).

AGE OF DENTAL OFFICERS

In the table entitled "Criteria for Separation" on page 1105 of THE JOURNAL of August 11 it was stated that the age of dental corps officers eligible for separation was 45 or over. This should have read 50 years or over.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Aug. 27, 1945.

Scientific Developments to Be Completed

Scientific developments under way when Japan surrendered will be completed, according to Dr. Vannevar Bush, chairman of the Office of Scientific Research and Development and one of the leaders in creation of the atomic bomb. Following a conference with President Truman, he disclosed that the Office of Scientific Research and Development will be liquidated in the course of time. The wartime agency was operating "full blast" when Japan quit, and it cannot be eliminated over night, he said. It is one of the smallest agencies. "It just doesn't make sense," Dr. Bush stated, "to conduct research for three years and then drop it in fifteen minutes." The Office of Scientific Research and Development has many contracts with universities and commercial firms and laboratories still in force. Much of the work now being done is being completed against its need for defense or peacetime use. The peak of personnel of the Office of Scientific Research and Development was a little over seven hundred workers, half of whom were volunteers.

Veterans' Mental Health Hazards Stressed by Colonel Menninger

Col. William C. Menninger, chief of the War Department Psychiatric Division, warns that if the 300,000 veterans discharged for neuropsychiatric reasons are unable to find jobs they may become "confirmed invalids." He also stated that 1,825,000 men rejected by the Army because of "personality disorders" will be thrown toward "mental ill health" if confronted with unemployment. Colonel Menninger informed the Senate Banking Committee that psychoneurosis is the basis for 43 per cent of Army medical discharges and that another 130,000 were released because of inadaptability or ineptness; 39 per cent of the 5,650,000 men rejected by the Army, or 1,825,000 men, were turned down "because they were suffering from some type of personality disorder." In his testimony on the Senate study of jobs-for-all legislation to enable the government to plan against depressions and unemployment, Colonel Menninger said that most of the Army's psychiatric casualties were "children of the depression" who grew up when there were 8,000,000 unemployed.

General Bradley Gets First Hand Medical Information

Gen. Omar Bradley, veterans' administrator, recently sent a medical staff composed of reserve officers to tour the country for first hand information on veterans' medical facilities. This was revealed during a meeting here with representatives of the American Legion, Disabled American Veterans and Veterans of Foreign Wars. General Bradley also disclosed that he is attempting to use 100 beds each in Walter Reed and the Bethesda Naval Medical hospitals to combat overcrowded conditions in Mount Alto Hospital and is moving the crowded District of Columbia regional office nearer to his office to save veterans from "shuttling back and forth" attending to their affairs. Veteran groups regard all three disclosures as indicative of good treatment from the new administrator.

Federally Financed Lanham Act Projects Cut Down

Federal Works Agency regional officials throughout the country have been instructed to review the need for continuance of aid to wartime facilities after October 31. However, \$8,000,000 in Lanham act construction, which includes the new Georgetown and George Washington hospitals, will "very likely" not be affected by liquidation of aid to war centers. Under the Lanham act, cities with populations increased by an influx of

war workers received federal assistance toward maintenance and building of child care centers and hospitals and for provision of municipal services, recreation and health programs. In Washington some forty-eight nursery schools and child care centers having an enrolment of 700 children will be affected. Major Gen. Philip B. Fleming, head of the Federal Works Administration, said that all federally financed Lanham act projects on which construction has not yet begun will be suspended immediately and allotments rescinded. Projects under construction may continue either to completion or to completion of a useful unit of the project if need for the project can still be shown to exist.

Slight Increase in Number of Women Medical Students

Despite desperate need for civilian doctors during the war, there has been only a slight increase in the number of women doctors. According to a report of the Women's Bureau of the Department of Labor there were 1,146 women students in approved medical schools in 1943 and 1,176 in 1944. The report gives these reasons: "Length of the training program for medicine as compared with other professions is of itself a deterrent to many women, since it not only increases the total cost to the student but also postpones the date she can begin to earn. . . . Since the war, tuition fees for medical schools have increased; in 1943 they were \$409, compared with \$378 in 1940."

Warning of Dangers in the Use of DDT

The similarity of DDT to flour was cited by medical authorities in warning consumers of dangers in having it stored in the household. Since the surrender of Japan the insecticide, developed during the war and restricted to army use to keep down disease in battle areas, has been more and more in the news with the prospect of its release for general civilian use. Already chemical firms are planning its distribution on a large scale. Washington authorities are also watching with interest the experiment at Rockford, Ill., where 1,100 gallons of DDT was spread over the community to control an outbreak of infantile paralysis.

Army Research on Artificial Limbs

Brig. Gen. Eugene A. Regnier, former cavalry officer, regarded as a topnotch administrator, has been appointed by Gen. Brehon Somervell to head the Army Service Forces Research and Development Division. General Somervell has ordered Regnier to make development of better artificial arms and legs his top priority job and to speed work of medical research officers, "whose efforts thus far in this field have been inadequate." General Regnier will try to translate Somervell's orders into something tangible for servicemen who have been disappointed with artificial limbs supplied by the Army.

Construction of Four Hospitals Approved by President

Veterans Administration announces that President Truman has approved construction of four hospitals: (1) an 1,800 bed neuropsychiatric hospital on a 713 acre site at Camp Reynolds, Greenville, Pa.; (2) a 300 bed general medical and surgical hospital at Seattle on a 44½ acre Beacon Hill site given by the city; (3) a 250 bed general medical and surgical hospital at Fresno, Calif., on a 20 acre site given by the city; (4) a 250 bed general medical and surgical hospital at Iron Mountain, Mich., on a 30 acre plot known as the von Platten-Fox site.

Proposed Creation of U. S. Public Welfare Department

Administration leaders have drafted plans for creation of a new department of government, the Department of Public Welfare. As outlined, it would include the Federal Security Agency, the Public Health Service, the Children's Bureau of the Labor

Department and possibly others. It would be headed by a new cabinet officer. If created, it would be the first new department established since the Department of Labor was set up thirty-two years ago.

Mothers Protest Closing of Child Care Centers

Since the announcement that withdrawal of Lanham act funds will result in closing of fourteen of twenty-two child's care centers in the District of Columbia, worried mothers in a meeting have demanded an extension of federal funds for the centers.

Penicillin Released From War Controls

The War Production Board announces that penicillin has been removed from all restrictions as to use and allocation, effective August 31.

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

Group Health Doctors' Plan Speeds up Enrolment

The board of directors of Group Health Cooperative in New York City, which operates a plan of insurance against doctors' bills, announced at its meeting June 27 that since Visiting Nurse Service was added to the plan's benefits on June 1 there has been the most rapid increase in enrolment in its history.

"More than 3,500 new subscribers have been secured during the month of June so far," Mr. Charles Marlies, president of Group Health, said. "In every case, employers are paying either a large share or all of the premiums for their employees. In several instances the Group Health Plan is a part of agreements with trade unions. Corporations which have taken the plan are in a wide variety of industries.

"This increasing interest on the part of employers," Mr. Marlies pointed out, "shows a growing recognition of the value of insurance against the costs of medical care as an essential element in employee welfare programs. Progressive management sees the need of average families to put medical expenses on a budgetable basis."

Eighteen Million Covered by Blue Cross Plans

More than a campaign promise or a majority vote is required to furnish adequate hospital and medical care to every one in America. C. Rufus Rorem, Ph.D., director of the American Hospital Association's hospital service plan commission, Chicago, declared in Philadelphia on June 14 during an address at a Regional Conference of fourteen Blue Cross plans.

Mr. Rorem made his statement in reference to the newly introduced Murray-Wagner-Dingell bill, now before the United States Congress, which proposes (among other phases of social security) a federal plan of compulsory health insurance, and to similar bills now before some state legislatures.

The commission, which Mr. Rorem directs, is the national coordinating agency for eighty-four nonprofit Blue Cross health service prepayment plans with a voluntary membership of 18,000,000 persons in forty-three states, seven Canadian provinces and Puerto Rico.

For more than twelve years, Mr. Rorem said, the American Hospital Association has recognized the value of the insurance principle for lightening the financial burdens of patients and stabilizing the income of hospitals. "What the federal bill proposes," he stated, as far as its health provisions relate to the employed population and members of their families, "the Blue Cross plans are achieving and have for the past ten years. The Blue Cross movement has not been crystallized into a final pattern," the director of the commission emphasized. "Executives and trustees of these nonprofit community organizations recognize that their success in reaching 18,000,000 Americans is a challenge to extend the protection to every employed person and family dependent throughout America."

Bureau of Information

SUMMARY SHEETS FROM WASHINGTON

Completed county summary sheets have been received from counties in Washington through Dr. A. J. Bowles, secretary, Washington State Medical Association.

The accompanying table gives data from selected counties in this state. The column giving the number of persons per telephone is used as one index of the economic status of the area. Many physicians over 65 years of age are carrying on large practices and are doing much to maintain the health of communities. They are not included in computing physician population ratios, however, as the future needs of the communities will be largely dependent on younger physicians.

A current knowledge of needs of communities for doctors is essential if adequate help is to be given veteran medical officers in their problems of medical practice. These needs can be indicated on the summary sheets under "Remarks" by the state and county secretaries and are then available to inquiring medical officers. Frequent reports from state and county medical societies about needs of communities for doctors will help

Washington

County ¹	Principal Cities ²	Population	Physicians Under 65	Persons per Physician	Persons per Telephone ³
Asotin.....	Clarkston.....	6,558	1	6,558	32
Douglas.....	.....	5,925	2	2,963	13
Grant.....	Grand Coulee.....	6,835	5	1,367	8
Grays Harbor.....	.....	45,873	19	2,414	9
Lincoln.....	Aberdeen.....	18,846	.....	.....	.....
Mason.....	Hoquiam.....	10,835	.....	.....	.....
Pend Oreille.....	.....	9,242	5	1,848	5
Skagit.....	Shelton.....	11,970	3	3,990	18
Wahkiakum.....	.....	3,767	.....	.....	.....
Yakima.....	.....	5,477	4	1,369	27
.....	.....	36,091	14	2,578	8
.....	Anacortes.....	5,875	.....	.....	.....
.....	Mt. Vernon.....	4,278	.....	.....	.....
.....	Sedro Wooley.....	2,051	.....	.....	.....
.....	.....	3,159	1	3,159	11
.....	.....	95,725	35	2,545	12
.....	Yakima.....	27,221	.....	.....	.....
.....	Toppenish.....	3,683	.....	.....	.....

1. Bureau of Census, estimated population 1943.

2. Bureau of Census, population 1940.

3. Based on 1940 figures, American Telephone and Telegraph Company.

maintain current files and will increase the service of the Bureau.

With the information available on a completely filled out summary sheet, it is readily possible for an interested medical officer to make an initial selection of areas in which he might like to practice. Since vacancies are held open in many communities for doctors now in military service, further investigation by direct correspondence with state and county medical societies will always be necessary to insure an accurate report of the needs of individual communities.

FOUR STATES NOT YET REPORTED

In recent weeks, many requests have been made by veteran physicians for help with their problems of returning to civilian practice. Where information about the medical and economic factors of counties is lacking, it is impossible to give these men the help they need. Those states and counties which have not returned completed county summary sheets are urged to do so as quickly as possible so that the Bureau of Information can more fully accomplish its aims of giving adequate help to physicians returning from service with the armed forces.

County summary sheets have not yet been received from four states. Those states from which no returns have been received include Delaware, Oregon, Rhode Island and Vermont.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Changes in Health Officers.—Dr. Elmus K. Hanby, Attalla, has resigned as acting health officer for Etowah County, effective August 1, to devote more time to private practice (THE JOURNAL, July 21, p. 891).

Cancer Clinic.—The Alabama Division of the Field Army, American Cancer Society, recently opened its second industrial cancer clinic at Talladega. The first is at Avondale Mills, Sylacauga. The new clinic was made possible through the Bemis Brothers Bag Company, Talladega, and members of the Talladega County Medical Society are cooperating in examining the patients. Men and women are examined at the clinic.

Concentrated Attack on Venereal Disease.—Of the more than 260,000 persons in Jefferson County examined for venereal infections in a recent six week period more than 3,000 were found to have early syphilis. The total examined represents 90 per cent of the population of the county, which is the ninth in the state to launch a concentrated examination campaign authorized by the 1943 legislature when it passed a law requiring all persons in the state between the ages of 14 and 50 to have a blood examination. Those found with syphilis are to get treatment either from a physician or free through the state department of health. The U. S. Public Health Service, the state department of health and the county and city health departments of the state are cooperating in the survey, which is broadened in the attempt to uncover also venereal diseases other than syphilis. According to the *Southern Medical Journal*, reports in the medical literature suggest an estimate that one person in every ten in Alabama has syphilis.

DISTRICT OF COLUMBIA

Frederick Gillick Resigns.—Dr. Frederick G. Gillick has resigned as chief of the bureau of venereal disease in the district health department to resume work with the U. S. Public Health Service, according to the *Washington Star*. Dr. Gillick has been connected with the department since 1943.

Tuberculosis Association Creates Bureau of Information.—The District of Columbia Tuberculosis Association, through its recently developed bureau of information, offers information in relation to health and community services in the control of tuberculosis in the District of Columbia; assistance in how best to use all available diagnostic facilities, such as x-ray equipment and sputum examinations; literature on tuberculosis; diagnostic standards; x-ray interpretations; booklets and pamphlets on family health education for office distribution to patients, and health education for patients and families on referral. Rebecca Sweeney, R.N., is secretary of the bureau of information, 1601 18th Street N.W.

ILLINOIS

Changes in Health Officers.—Dr. Samuel N. Mallison has resigned as superintendent of health of Decatur, effective August 1, to join the state department of health as district No. 6 health officer with headquarters in Champaign. He will be in charge of the district including Livingston, Kankakee, Ford, Iroquois and Vermilion counties.

Committee Named for Hospital Study.—Dr. Henrietta M. Herbolzheimer, acting chief of the division of maternal and child hygiene, state department of health, Springfield, has been named secretary of an executive committee to conduct a survey of Illinois hospital facilities. Newspapers report that the group will operate under authority of an advisory council appointed by Governor Green to determine hospital needs throughout the state.

Chicago

Personal.—Alden B. Mills, managing editor since 1933 of the *Modern Hospital*, has resigned to become superintendent of the Collis P. and Howard Huntington Memorial Hospital, Pasadena, Calif.; he will take up his new work October 15.

School for Medical Librarians.—The Wesley Memorial Hospital announces the opening of a School for Medical Records Librarians, the first class to begin September 25 and the second February 12. The new school, conducted as a subdivision of the program in hospital administration at Northwestern University, makes it possible to grant university credit totaling twenty-four semester hours to students who successfully complete the courses. Edna K. Huffman, R.R.L., chief medical records librarian, Wesley Memorial Hospital, has been named director of the school, which is being sponsored by the hospital administration division, School of Commerce, Northwestern University. Additional information may be obtained from Mrs. Huffman at Wesley Memorial Hospital, 250 East Superior Street, Chicago 11.

MASSACHUSETTS

New Director of Mental Hygiene.—Dr. William C. Inman, Danvers, has been appointed director of the division of mental hygiene and research of the Massachusetts State Department of Mental Health. Dr. Inman succeeds Dr. Edgar C. Yerbury, who resigned to become superintendent of the Connecticut State Hospital, Middletown, Conn. (THE JOURNAL, July 22, 1944, p. 858). Dr. Inman graduated at Tufts College Medical School in 1924. For the past few years he has been assistant superintendent of the Danvers State Hospital, according to the *Bulletin* of the Massachusetts Society for Mental Hygiene.

MICHIGAN

Fellowships in Psychiatry.—Dr. Albert C. Furstenberg, dean, University of Michigan Medical School, Ann Arbor, announces that there are ten one year fellowships in psychiatry now available at the university. These fellowships, which offer an annual stipend of \$2,000 and which are under the sponsorship of the Office of Veteran's Affairs of the State of Michigan, include training at the Neuropsychiatric Institute of the university. Candidates must be graduates of an approved medical school and must complete a rotating internship before beginning their fellowship. Applications should be made to Dr. Raymond W. Waggoner, professor of psychiatry, University Hospital, Ann Arbor.

Health Officers' Committee Named to Advise State Commissioner.—A five member committee from the Michigan Health Officers Association has been appointed to serve in an advisory capacity to the state commissioner of health. Members of the committee, who will meet once a month with Dr. William DeKleine, state health commissioner, to discuss problems and exchange ideas, are Drs. Hugh B. Robins, Marshall, Calhoun County; Bruce H. Douglas, Detroit; Richard Sears, Marquette; Leslie V. Burkett, Flint, Genesee County, and Albert E. Heustis Jr., Coldwater, Branch County. Dr. Clarence D. Barrett, Mason, health officer of Ingham County and president of the state health officers' association, is an ex officio member of the committee.

NEBRASKA

New Health Director of Lincoln.—Dr. Leroy L. Fatheree, since 1939 health officer of Little Rock, Ark., has been named director of the board of health of Lincoln, effective July 14. Dr. Fatheree graduated at the University of Tennessee College of Medicine, Memphis, in 1936.

Special Society Election.—Dr. John F. Gardiner, assistant professor of medicine, Creighton University School of Medicine, Omaha, was elected president of the Nebraska Tuberculosis Association at its annual meeting June 12. Other officers include Dr. Charles W. Way, Wahoo, and O. W. Ortlund, Omaha, vice presidents, and Clark S. Haas and Fred W. Conrey, Omaha, reelected secretary and treasurer, respectively.

Institutes on Tuberculosis.—Two one day institutes on tuberculosis were held at the Nebraska Hospital for the Tuberculous, Kearney and Omaha, August 6 and 8 respectively, according to *Better Health*, the bulletin of the state department of health. Among the speakers were:

Dr. Charles W. Rudolph, medical director, Hospital for the Tuberculous, Kearney.

Dr. Max Fleishman, medical director, tuberculosis service, Douglas County Hospital, Omaha.

Dr. Theodore F. Hilbish, tuberculosis consultant, U. S. Public Health Service, district 7, Kansas City, Mo.

Dr. Claude A. Selby, director of health, Nebraska State Department of Health, Lincoln.

Dr. Llewellyn E. Kling, Bellevue, director, state division of tuberculosis control.

Miss Margaret Taylor, R.N., public health nurse consultant, division of tuberculosis, U. S. Public Health Service, Washington, D. C.

Miss Lily C. Hagerman, R.N., public health nurse consultant, U. S. Public Health Service, district 7, Kansas City.

NEVADA

Dr. Caples Resigns.—Dr. Byron H. Caples, Reno, has resigned as director of the division of venereal disease control of the Nevada State Department of Health, effective June 30. Dr. Caples had held the position since 1937.

NEW YORK

Fund Named for Physician.—The will of Mrs. Charles E. Townsend bequeathed her residuary estate to St. Luke's Hospital, Newburgh, with the stipulation that it be known as the Dr. Charles E. Townsend Fund. It is estimated that the bequest will amount to approximately \$500,000. Dr. Townsend was president of the board of managers, consulting surgeon and at one time chief surgeon and chief of the hospital staff at St. Luke's. He died March 16, 1942.

Physician Membership Increased on Medical Care Commission.—On June 30 Governor Dewey appointed Drs. Harold F. R. Brown, Buffalo, and Andrew A. Eggston, Mount Vernon, as members of the New York State Temporary Commission on Medical Care, increasing the physician membership on the commission from four to six. The commission was created by the 1944 state legislature to make studies, surveys and investigations for medical care and to prepare recommendations for the Legislature. The original membership of the commission included four doctors of medicine, but action of the recent legislature increased the membership to six.

Cancer Teaching Day.—On September 18 a cancer teaching day will be held at the Middletown State Homeopathic Hospital, Middletown, under the auspices of the Medical Society of the County of Orange, Tumor Clinic Association of the State of New York, the state medical society and the division of cancer control of the state department of health. Speakers will include:

Dr. Earl D. Osborne, Buffalo, Cancer of the Skin and Allied Tumors.
Dr. Arthur J. Wallingford, Albany, Cancer of the Uterus and Vagina.
Dr. Hayes Martin, New York, Diagnosis and Curability of Intraoral Cancer.
Dr. Cushman D. Haagensen, New York, Cancer of the Breast.
Dr. George E. Binkley, New York, Cancer of the Colon and Rectum.

Mental Clinics for the Public.—The Westchester County Health Department was authorized August 6 by the board of supervisors to operate clinics for the mental care of persons who cannot afford private psychiatrists and psychologists. Credit is ascribed to the Westchester Mental Hygiene Association for launching the campaign to hold these clinics, which for the time will be known as "health clinics" and serve all residents. The supervisors appropriated \$15,000 for starting the first clinic, more funds to be made available as needed. It is expected that five or six clinics will be operating in various parts of the county by next year, costing annually an estimated \$75,000. For the present a psychiatrist, a psychologist and two social workers will start work in White Plains and sit occasionally in Mount Vernon. The communities of Westchester that are not in the county health district will be served on request.

Rehabilitation of the Blind.—A newly created rehabilitation division in the New York State Department of Social Welfare will administer a program to assist the blind set up under the federal vocational rehabilitation act. The program provides for rehabilitation of all blind persons over 14 years of age who need physical restoration, vocational training or job placement to fit them for self-supporting employment. The program will include medical, surgical, neurologic and related services; vocational training, including academic, technical and other courses; job placement and supervision of employment until the blind person becomes self sufficient, and studies and research. A general advisory committee will be appointed by Robert T. Lansdale, state social welfare commissioner, to advise the new division on general policies and standards and to assist in interpreting the program to the public. It will consist of representatives of management, labor, the medical profession, and public and professional and civic organizations identified with vocational rehabilitation of the handicapped. An advisory medical committee will also be set up, representing all specialized branches of medicine, public health nursing, hospital administration and social work. Among its members will be an ophthalmologist from the medical and advisory committee of the state commission for the blind, a member from the medical division of the social welfare department and a member of the general advisory committee, who will be the chairman. The medical committee will work cooperatively with the general advisory committee.

New York City

University News.—Dr. Louis Hausman has been appointed clinical professor of neuropsychiatry at the New York University College of Medicine, effective September 1, and Dr. Charles W. Depping assistant clinical professor of otorhinolaryngology. Dr. Renato Gazmuri, instructor of internal medicine, University of Chile, Santiago, has joined the department of physiology as a Rockefeller fellow. Ivan C. Hall, Ph.D., has resigned as professor of bacteriology and director of the department of bacteriology of the college.

Hospitals Merge.—Beekman Hospital and the Downtown Hospital are consolidating and will form a new institution to be known as the Beekman-Downtown Hospital, to be centrally located in the financial section of the city. It is planned to hold a public campaign for funds to erect a new building to hold about 200 beds and to be conducted later this year. The Beekman Hospital has a fund of \$500,000 in escrow which will be used toward the cost of the new building. Beekman Hospital was founded in 1906 under the name of St. Gregory's Hospital. Downtown Hospital was established in 1916 under the name of Broad Street Hospital.

Mother's Aide Program.—The New York City Department of Welfare has inaugurated a new service to be known as the "Mother's Aide," which is designed to prevent unnecessary commitment of children to institutions when mothers are temporarily ill, either in a home or in a hospital, by providing care for them in their own homes. The city's budget provides for forty-five of these aides at annual salaries of \$1,440 as for an administrative staff of five persons consisting of supervisor and four investigators. It is expected that the program will not only alleviate the critical shortage of facilities for short term placement of children but avoid the psychological shock to the child of institutionalization.

Warning on Typhoid.—The New York City Department of Health has issued an appeal to city residents who may have stopped at the Seacliff Hotel in Bradley Beach, N. J., recently to report to the department so that proper precaution may be taken to prevent a spread of typhoid which originated at the New Jersey hotel. Investigation by the New York City Health Department has revealed that 4 New York City vacationists developed typhoid and 14 additional New Yorkers are known to have been in the hotel on or after July 13, when exposure is presumed to have taken place. The New Jersey State Health Department, which traced the outbreak to kitchen employee at the Bradley Beach resort, has already reported that there are 14 cases of typhoid among former hotel guests in addition to 4 cases discovered so far in New York City. The majority of patients became ill during the period July 23 to August 3. The city appeal was issued because the hotel register is said to be incomplete.

OHIO

New Dean of Pharmacy.—Arthur Paul Wyss, Ph.D., professor and head of the department of pharmacy at the University of Buffalo, Buffalo, N. Y., has been appointed dean of the School of Pharmacy at Western Reserve University, Cleveland. He succeeds Franklin J. Bacon, Ph.D., professor of botany and pharmacognosy, who accepted the temporary appointment last year when Edward D. Davy, B.S., resigned to become head of the division of pharmacy at the Winthrop Chemical Company, Rensselaer, N. Y.

Veterans Collateral Pool Fund.—The Columbus Academy of Medicine has established a Veterans' Collateral Pool Fund of \$50,000 for "assisting, in a material yet uncompromising way, the returning veteran members of the Columbus Academy of Medicine who may need financial assistance in establishing or reestablishing themselves in the practice of medicine." The state medical journal points out that the Columbus plan is unique. Physicians were requested to purchase one or more 1.5 per cent U. S. Treasury Coupon Bonds, due in 1950, in the amount of \$500 each and to agree that the bond be placed in a pool to be held for a period of five years if necessary. The pool is to be used in providing collateral for loans to be made by a Columbus bank, the pool to be under the supervision of the veterans' committee of the academy of medicine. The veterans' committee and the officials of the bank are to determine the necessity, reasonableness and amounts of all loans applied for.

Proposed State Health Center.—A proposal is before Governor Frank J. Lausche of Ohio and members of the legislature for the erection of a state health center at Ohio State University, Columbus, Science reports. An appropriation of five million dollars is requested to cover the cost of the center as the result of two years of planning and study by

members of the medical and dental faculties and by representatives of these professions. The proposed center has been approved by official representatives of the medical colleges of Western Reserve University, Cleveland, and the University of Cincinnati. It has also been approved by the Inter-University Council, which includes representatives of the six state universities, Bowling Green State College, Kent State University, Miami University, Oxford, Ohio University, Athens, and Ohio State and Wilberforce University. Joining also in active support of the project are medical, dental and nursing alumni of the Ohio State University under the chairmanship of Dr. Russel G. Means, Columbus.

TEXAS

Osteopaths Defeated in Injunction Proceedings Over EMIC Program.—The Third Court of Civil Appeals, Austin, recently denied to osteopaths an injunction to restrain the state board of health from carrying out the EMIC program until the program had been modified to permit osteopathic participation. The plan in operation in Texas at the time limited participation, as far as medical services other than obstetrics were concerned, to graduates of medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association. As to pediatric services to newborn infants referred by obstetricians, the plan limited participation to specialists certified by the American Board of Pediatrics or physicians who have completed at least one year of graduate training in a pediatric residency approved by the Council on Medical Education and Hospitals. Such restrictions, the osteopaths claimed, wrongfully deny to them the right of participation. The court pointed out, however, that under the federal law authorizing the program a state board of health acts not as a state agency but as an agency of the federal government through which the funds for the program are to be expended, that the plan in operation in Texas was one outlined by the Children's Bureau and approved by it and that state courts have no jurisdiction over the United States or its agencies charged with the administration of the provisions of the appropriation act authorizing the expenditure of funds for the program. The court, therefore, denied the petition for the injunction.

ALASKA

Health Activities.—A survey of health conditions on Seward Peninsula, as well as northern parts of Alaska, is to be carried out for westward and interior Alaska. The disease control program will consist of case finding, diagnosis and rapid treatment, with administration of immunization, chest roentgenograms, education in nutrition and a venereal disease program. It is said that the health of the Eskimos demands particular attention. They will be included in this health survey; *Northwest Medicine* reports that an investigation was recently instituted in Alaska by leading Ketchikan physicians, together with the Territorial Health Department and local health workers, to find the cause of outbreaks of intestinal illness existing for several years in Ketchikan and that vicinity. Information will be sought from persons who are known to have suffered intestinal illness of unknown origin during past months. An intensive survey was contemplated to secure this information.

GENERAL

Examination in Otolaryngology Canceled.—The Chicago meeting of the American Board of Otolaryngology, scheduled to be held in October, has been canceled. The next examination will be conducted in the spring, the exact time and place to be announced later. Dr. Dean M. Lierle, University Hospital, Iowa City, is the secretary-treasurer of the board.

Markle Foundation Publishes Report.—The John and Mary R. Markle Foundation appropriated more than \$500,000 in 1944 for all purposes, according to its annual report just made available. Appropriations included \$323,564 for research in the medical and physical sciences, \$79,645 for old age assistance and relief to individuals, \$38,500 for special contributions and \$78,375 for administrative and general expenses.

James Fieser Joins National Safety Council.—James L. Fieser has been appointed to the staff of the National Safety Council to develop a nationwide public service program in home, traffic, farm, school and public safety. Mr. Fieser, who for more than twenty-seven years has been with the American Red Cross, has resigned as vice chairman at large of the Red Cross and was to assume his new activities September 1 with headquarters in New York.

Wallace Graham Named Personal Physician to President Truman.—Lieut. Col. Wallace H. Graham, M. C., formerly of Kansas City, Mo., is to be personal physician to President Truman, according to the Associated Press, August 13. Colonel Graham is 34 years of age and the son of Dr. and Mrs. James W. Graham, Kansas City. He graduated at Creighton University School of Medicine, Omaha, in 1936 and subsequently studied at Harvard University and in Vienna.

Proposed Measures to Prevent Rise in Drug Addiction.—New international measures to prevent a postwar rise in drug addiction were recommended August 13 by the Bureau of Narcotics, U. S. Treasury, according to the *New York Times*. In a report for 1944 on the traffic in opium and other dangerous drugs, the bureau said that important stocks of drugs were being held in certain countries by traffickers who awaited a chance to ship them to the United States for distribution. Iran, India and Mexico were the chief sources of opium smuggled into the United States last year, it was stated. There was a sharp rise in opium seizures, especially at Atlantic ports and along the Mexican border. The largest single seizure made by U. S. customs officers in six years, despite restrictions on shipping, was 63 pounds of opium sent from India and taken from Baltimore.

Special Society Elections.—Dr. Custis Lee Hall, Washington, D. C., was chosen president-elect of the United States chapter of the International College of Surgeons at a recent meeting in New York and Dr. Herbert Acuff, Knoxville, Tenn., was installed as president. Other officers include Drs. John Royal Moore, Philadelphia, senior vice president; Drury Hinton, Drexel Hill, Pa., treasurer, and Louis J. Garipey, Detroit. Dr. Max Thorek, 850 West Irving Park Road, Chicago 13, is the international general secretary of the International College of Surgeons.—At the annual meeting of the board of trustees of the American Registry of X-Ray Technicians in Chicago, June 17, Dr. Darmon A. Rhinehart, Little Rock, Ark., was elected president, Dr. Sidney J. Hawley, Danville, Pa., vice president and Dr. John M. Keichline, Huntington, Pa., secretary-treasurer. Mr. Alfred B. Greene, Oak Terrace, Minn., was reappointed executive secretary.

Plan to Accredit Schools of Public Health.—The Commonwealth Fund has made available funds to the American Public Health Association to "create a properly constituted accrediting body to carry forward progressively a list of universities qualified with regard to program, personnel and facilities, to offer adequate courses leading to degrees of master of public health, doctor of public health and the diploma in public health." Charles-Edward A. Winslow, Dr. P.H., New Haven, has been named counselor to be responsible for the investigative work. He will be aided by persons experienced in the administration of health departments, chosen from different localities for different schools. The present plan will be to examine schools for accreditation at their own request. First attention will be given to schools in the United States now offering the M.P.H. degree and in Canada offering a Diploma. Accreditation of field training stations and of courses for various public health specialties will not be attempted immediately, according to the *American Journal of Public Health*.

New Officers of Tuberculosis Groups.—Dr. Victor F. Cullen, State Sanatorium, Md., was recently chosen president-elect of the National Tuberculosis Association and Mr. Will Ross, Milwaukee, was installed as president. Other officers include Dr. Henry Stuart K. Willis, Northville, Mich., and Dr. Philip H. Pierson, San Francisco, vice presidents; Dr. Charles J. Hatfield, Philadelphia, secretary, and Livingston Platt, New York, treasurer. Dr. John Alexander, Ann Arbor, Mich., is the new president-elect of the American Trudeau Society, medical section of the National Tuberculosis Association, and Dr. Ezra R. Bridge, Rochester, N. Y., president. Drs. R. McLeod Riggins, New York, and Hugh B. Campbell, Norwich, Conn., are vice president and secretary-treasurer, respectively. Edward K. Funkhouser, Washington, D. C., executive secretary of the District of Columbia Tuberculosis Association, is the new president of the National Conference of Tuberculosis Secretaries. Other officers include Glenn V. Armstrong, executive secretary, Los Angeles County Tuberculosis and Health Association, vice president; Mrs. May M. Pynchon, Jacksonville, Fla., executive secretary, Florida Tuberculosis and Health Association, secretary, and Donald E. Pratt, executive secretary, Missouri Tuberculosis Association, treasurer.

Council of New England Medical Societies.—On July 18 the Council of New England State Medical Societies was organized at a meeting in Providence, R. I. All the New England states were represented by delegates with the exception of Maine, these delegates being unable to attend because of transportation difficulties. The objective of the new group is to bring about a closer cooperation between the state medical societies in New England in the development and maintenance of the highest standards in the conduct and administration of medical care, in the development of plans to improve the health of all the people in the New England states. It proposes to concern itself with the problems of the composing members, avowing the principle that it shall not constrain its members to relinquish any existing affiliation, nor shall it seek to supersede the control now exercised by the governing bodies of each respective state medical society, or by the House of Delegates of the American Medical Association. The council decided to hold an annual meeting on the third Wednesday of April. Temporary officers chosen include Drs. James R. Miller, Hartford, Conn., chairman of the council of the Connecticut State Medical Society, president; John F. Kenney, Pawtucket, R. I., president of the Rhode Island Medical Society, vice president, and Mr. John E. Farrell, executive secretary of the Rhode Island Medical Society, secretary-treasurer. The next meeting of the council will be held October 14.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended August 18 have been received from the division of public health methods, U. S. Public Health Service, as follows:

Division and State	Poliomyelitis		Division and State	Poliomyelitis	
	Week Ended 8/18, 1945	Week Ended 8/19, 1944		Week Ended 8/18, 1945	Week Ended 8/19, 1944
New England States:			South Carolina ...	11	1
Maine	0	0	Georgia	3	5
New Hampshire...	1	6	Florida	3	8
Vermont	2	2	East South Central States:		
Massachusetts...	22	30	Kentucky	1	35
Rhode Island...	0	0	Tennessee	36	5
Connecticut	13	15	Alabama	7	7
Middle Atlantic States:			Mississippi	3	6
New York	110	469	West South Central States:		
New Jersey	72	24	Arkansas	0	2
Pennsylvania	50	108	Louisiana	6	4
East North Central States:			Oklahoma	18	6
Ohio	15	92	Texas	55	4
Indiana	16	23	Mountain States:		
Illinois	77	34	Montana	0	2
Michigan	10	55	Idaho	1	0
Wisconsin	3	11	Wyoming	0	2
West North Central States:			Colorado	7	3
Minnesota	9	38	New Mexico	0	0
Iowa	7	12	Arizona	0	3
Missouri	10	4	Utah	8	2
North Dakota	2	4	Nevada	1	0
South Dakota	0	0	Pacific States:		
Nebraska	4	2	Washington	22	12
Kansas	1	7	Oregon	2	19
South Atlantic States:			California	25	16
Delaware	2	4	Total	692	1,254
Maryland	8	27	First 33 weeks of		
Dist. of Columbia...	12	19	Year	4,276	6,262
Virginia	25	66	Median, 1940-1944...	2,821	
West Virginia	6	12			
North Carolina...	6	48			

LATIN AMERICA

Health Activities in Latin America.—*Inter-American Typhus Conference in Mexico.*—The public health and welfare department of Mexico is calling an Inter-American Typhus Conference to be held in Mexico City from October 7 to 13 under the sponsorship of the Institute of Inter-American Affairs and the Pan American Sanitary Bureau, to bring together leading workers in the typhus field in the American republics to discuss the latest developments, both in the field of research and in the practical control of the disease. As epidemic typhus is a serious problem in many of the American republics and as leaders of the typhus control program in the United States armed forces have experienced success in the control of this disease, it is believed that the calling of such a conference is opportune. Invitations to leading scientists are being issued, but other persons who have an interest in this subject will be welcome to attend the meeting. Correspondence should be directed to the Secretaría de Salubridad y Asistencia, Mexico, D. F.

Personal.—Col. Harold B. Gotaas, Sc.D., director of the division of health and sanitation of the Institute of Inter-American Affairs, has been decorated by the Chilean government with the Order of Merit. Before joining the army in 1942 Colonel Gotaas was professor of sanitary engineering in

the University of North Carolina School of Public Health. —Dr. Joaquin J. Vallarino, chief of the x-ray section of the Herrick Clinic in Panama, is the new Panamanian ambassador to the United States.—Dr. Jean F. Rogier, formerly medical officer with the Field Party in Brazil, left Washington, D. C., June 28 to become chief of the Field Party in Paraguay.

New Construction.—Work was started in July on a new dispensary in La Boca, Canal Zone, to provide more adequate health facilities for the silver workers in the area. Under present arrangements La Boca residents receive dispensary service in Balboa.

FOREIGN

"Pool" of Physicians Created.—A pool of young physicians has been set up by the labor government in New Zealand which, according to the *New York Times*, ties physicians to the health department for from three to five years after graduation and binds them to serve in the posts and locations chosen for them. The *Times* states that the ministry of health has achieved this objective by a simple variation in the terms of the scholarships granted to the national medical school at Dunedin. First plans for the scholarships, which are granted by the government, were that they should allow brains to be sufficient qualification to study medicine and abolish the barrier represented by the need of funds to begin seven years of study. Arthur Nordmeyer, health minister, has announced, it was said, that the academic merit alone is to be the test of whether scholarships are granted and the means test is abolished. There was considerable argument between the health department and the national medical association over the terms of the scholarships when these were first drafted. The medical men were dismayed at the way in which the government had tied down the students for the years following their graduation. On the arguments of the doctors the terms were said to have been varied. But now the minister of health has announced that if a medical student is graduated on a scholarship he must carry out his pledge to serve from three to five years where the government sends him or else repay the amount of his scholarship, plus interest, and plus a penalty to be determined by the minister. The amount of this fine apparently could be varied. The change had been made, the minister frankly admitted, because "some students had openly declared their intention of terminating their contract by repayment of the scholarship money. Thus every one of the sixty-seven students who have already accepted scholarship aid and every one who does so in the future becomes drafted to three to five years' state service unless able to pay a fine that is intended to be so large as to make it hard for him to escape. The government has made this move because it needs interns for public hospitals now staggering under the load that free medical care has laid on them, but chiefly because there is what Mr. Nordmeyer calls "great scope" in back country areas, where medical services are held inadequate. In some regions, particularly mining districts where physicians have been subjected to threats if they did not grant medical certificates, it has been hard to find doctors to serve now that free consultation has stepped up city business. The health department will not require that doctors stay in these regions for long periods, Mr. Nordmeyer says, and will provide houses and automobiles. Pay for these young draftees is not to be high. It will approximate \$4,200 a year at prewar rates of exchange, no more than dock laborers have been receiving in wartime, and it will stop there unless the doctor obtains some further qualification or wins recognition as a specialist. But the winning of these qualifications is one of the strongest points of criticism of the new government plan. Strong criticism of the new move by the health minister came from the national medical association. "As originally understood, the object of the scholarships was that talent should not be impeded by lack of means," an official statement said. "It now appears that universal availability of the scholarships and the conditions attaching to them will create a pool of young doctors tied to the government and subject to direction to whatever work the government may determine. Would any trade union countenance such conditions? Evidently a large number of scholarships is contemplated, and the capacity of the medical school is limited. Will there be room for students who prefer to pay their own way, or will these have to go elsewhere? Will they be allowed to do so?" The National Medical Council also found dangers in a new government plan to permit graduate doctors to begin private practice without first spending a year in hospital work.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 4, 1945.

The Socialist Government and the Medical Profession

It was pointed out previously (*THE JOURNAL*, Nov. 4, 1944, p. 651) that the proposed national health service, which has produced the greatest crisis ever faced by the medical profession, was only one of the manifestations of the socialistic trend of British politics. The profession has been so occupied with discussion of details that it does not seem to have given this consideration due weight. It has accepted socialistic legislation as inevitable, but its representatives in negotiation with the minister of health of the late government have endeavored to secure terms acceptable to the profession. That government was a coalition of all the political parties formed for the purpose of prosecuting the war. But in spite of a predominant conservative ingredient the coalition government agreed to schemes of socialistic legislation. The chief of these was the plan for a national health service, which has been described in previous letters. "We are all socialists in these days," said a great conservative statesman many years ago, and, as wary politicians, the conservatives have seen the need to accept some socialism in order to avoid the greater evil of the return to office of the socialistic party. But this policy has not now availed them. Notwithstanding the prestige of the greatest national leader ever produced by this country, to whom an unpayable debt is owed for his unique services in her hour of greatest peril, the conservative party has sustained a crushing defeat. An attempt to explain the causes of this defeat would take one outside the province of these letters. But it may be said that the socialistic trend mentioned was pent up during the need for union of all parties in the face of the German peril, and that now the flood is let loose. Also the country decided that if it was to have socialism this would come more effectually from professed socialists than from those who were only lukewarm.

The bearing of all this on the proposed national health service will be obvious. Before the election the representatives of the profession had long negotiations with Mr. Willink, minister of health, who is a conservative and a lawyer. The negotiations have not been published, but there are indications that Mr. Willink would have tried to meet the objections of the profession and make the national service as acceptable to the profession as possible. The socialist press charged him with "surrendering to the doctors," though he seems to have only endeavored to come to an agreement while preserving essentials. Now we have a socialist government in power, and the minister of health, Mr. Bevan, is a stalwart socialist. Hence the *British Medical Journal* says that it would have been an advantage if the bill for a national health service could have been presented to Parliament by the late coalition government, in which the political forces were more or less evenly balanced. Now that the Labor party is in power the results of prolonged and difficult negotiations may be found "in the discard." In a pamphlet on a "National Service for Health" this party has declared that "only a system of whole time salaried and pensionable doctoring will meet the requirements." Now this proposal would convert the medical profession into government officials, which has been declared by the representatives of the profession to be the most objectionable feature of the scheme for a national health service.

Hospital Reform

The government project for a complete national health service has led the Ministry of Health to make a hospital survey and ascertain what facilities exist, to assess their adequacy and suggest how they can be coordinated and expanded to provide

a complete and efficient service. For this purpose England and Wales have been divided into ten areas, of which London and the surrounding area are one. A report on this area by Drs. A. H. M. Gray and Andrew Topping has been published. The inhabitants number 14 million. There are some 380 governing bodies of voluntary hospitals, 25 major hospital owning local authorities, 20 minor authorities with maternity homes and 130 isolation and smallpox hospitals also provided by local authorities. As a result, admission to municipal hospitals is often hampered by administrative boundaries, while the independence of the voluntary hospitals has caused dispersal and competition instead of concentration into efficient units. In 1938 the voluntary hospitals admitted 473,000 and the municipal hospitals 477,000. But the voluntary hospitals dealt with eight times as many outpatients as the municipal.

The report is critical of the large amount of surgery done in the small hospitals by general practitioners, which is a reflection of the poor distribution of consultants in the area. Further, the care of the chronic sick is far from satisfactory. In the area as a whole there is a gross deficiency of beds.

Gray and Topping condemn the general practitioner hospital as a surgical specialist center. Each such hospital, they said, should be attached to a district hospital staffed with specialists. The function of the local general practitioner hospital should be for medical cases not requiring elaborate investigation but not suitable for nursing at home, for minor operations (excluding removal of tonsils and adenoids), for normal maternity cases, for the few urgent emergencies and accidents which cannot be taken to a district hospital and for convalescents. Specialists should visit the local hospitals regularly and hold outpatient clinics there. The main district hospital should not exceed 1,000 beds or fall below 400. A third type of "the special center" is proposed to serve areas much wider than those of district hospitals. These would include special hospitals, such as fever, chest or orthopedic. The most urgent single improvement would be in the staffing of hospitals. To make the best use of the specialists available, decentralization from London is urged. Payment of the specialists should be adequate for breaking their ties with London.

PARIS

(From Our Regular Correspondent)

July 14, 1945.

Reform of Medical Education and Organization

Robert Debré presented to the Comité des médecins français an interesting report on the professional organization of medicine and medical education. Debré believes that it should be possible to adopt the most audacious modern innovations along with the traditions which contain excellent elements and to restore to medicine the noble character of a liberal profession, while at the same time creating a solid sanitary framework under the surveillance of the state or other collective bodies. Equality must be realized among the French as regards health matters. It is necessary to assure to all patients the privilege of a professional secret, within reasonable limits, and free choice of the physician, the moral and therapeutic value of which is considerable. The reforms are to be based on the following principles:

1. The practitioner must retain the privilege of serving. This was well expressed by Duhamel, who said "The practice of medicine rests on a moral ideology, which generally is referred to as conscience; conscience is individual. . . . To give up individualism under conditions prevailing in the world today would be an act of resignation for a clairvoyant spirit, or, more exactly, a suicide. Since medicine has for its mission the assisting of man in the essential acts of his life, such as birth, suffering and death, medicine must remain one of the redoubts of individualism in danger."

2. Each French family should have an independent practicing physician.

3. The hospital, the medical personnel of which will be fixed and on full time, must absorb the private organizations and clinics and put at the disposal of the whole population and under the supervision of the faculty of medicine the center for diagnosis and treatment.

4. The teaching body must devote itself completely to its task and must lead essentially a hospital and university life.

5. To the faculties of medicine will be entrusted the technical direction of hospital services, the regional supervision of hygiene, the contact with practitioners, the courses of postgraduate instruction, the direction of the profession toward a close participation in national propaganda for sanitation and the organization of preventive medicine.

However, in this liberty and in this initiative given to the medical profession, the state will have its part. The state will conduct the financing and will set in motion and will maintain the administrative features of all these organizations. The state will carry through the work of prevention, the starting point of which will be the family physician, because the family is the initial unit.

Experimentation on Man

Christian Charpy presented to the Académie de médecine authentic documents which fell into the hands of the French police in the course of the invasion of Germany, and which establish irrefutable proof of experimentation on prisoners, performed not by the executioners but by German scientists. Histologic preparations of human testes and epididymides were found in the laboratory of Professor Hirth of Strasbourg. There were 54 preparations from 7 persons. Charpy produced reproductions of these preparations. They were not those of normal tissue. Some showed considerable edema with desquamation of the vascular walls, occasionally massive, at other times limited to the seminal epithelium, agglutination of seminal elements and homogenization of localized groups of interstitial cells. In other preparations edema appeared to be in the process of resorption, the congestion was less severe and a number of seminiferous tubules were reduced to a state of cellular uniformity; in others the spermatogenesis was arrested, while still others were represented by a cicatrix. The lesions were not generalized or homogeneous as, for example, after irradiation, in alimentary disturbances or in general intoxication. They were limited and appeared as spindles throughout the gland or through one lobe, the rest of the gland being little or not at all involved. Such lesions are produced when intraparenchymatous injections with toxic or irritating substances are made. The injecting needle reaches some tubes or certain lobes more directly, to the exclusion of others. "One cannot imagine," says Charpy, "other means capable of producing these lesions than the injection on the living." It is incontestable that these specimens came from experiments made on living man and sometime before death: eight or ten days or even longer. Even supposing that these injections were made under anesthesia, it is certain that the secondary reaction, the congestion and the edema caused pain. The aim of these experiments was probably an attempt to perfect an injection capable of sterilizing a man. The fact that the fixation was good indicates to the histologist that the patients were sacrificed immediately before the removal of the specimen. The volume of 2 of the specimens indicated that they were from testes of children aged 13 and 15 years. The Académie decided to break off all scientific relations with the German scientists until such time when they shall have rigorously cleansed their scientific organizations. Other proofs not less valid than those of Professor Charpy demonstrated that man was regarded by the Germans as a guinea pig.

Dr. Henri Chrétien, who was held for two years in a torture camp, furnished information collected first hand regarding methods of scientific extermination. He saw arrive at his camp, in the Vosges, two groups of 40 Gypsies each. The following day, a professor from Strasbourg in SS uniform, accompanied by an orderly, inoculated typhus by scarification into one of the groups. Dr. Paulson, detained Norwegian physician, was charged to look after the "experimental animals." All developed typhus. Another group of Gypsies were subjected to tests with toxic gases; others were assigned for experiments on freezing.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, July 30, 1945.

Special Medical Courses

In connection with the regular work of the University of Rio de Janeiro, an intensive postgraduate course in obstetrics and gynecology is being given during the current month at the Hospital Pro-Matre under the direction of Dr. J. M. Moniz de Aragão, associate professor at the university. Besides Dr. Aragão, Drs. Octavio de Souza, J. Berla de Niemeyer, Goulart de Andrade, Humberto F. Faria and C. Correa da Costa are in charge of the lectures and practical demonstrations included in the course. Cancer of the uterus, anomalous nidation, feminine sterility, sudden death during labor, brucellosis during pregnancy, the x-rays in obstetrics and fetal erythroblastosis are among the special topics included in the course.

A postgraduate course in plastic surgery is now being given at the University of São Paulo under the direction of Dr. J. Rebelo Neto, head of the department of plastic surgery at the Santa Casa Hospital of that city. Dr. Duarte Cardoso and Dr. Victor Spina are also in charge of the course, which includes lectures, practical demonstrations and operations.

A special course in medical psychology and cerebral physiology will be given at the Policlinica de São Paulo. Dr. Francisco Tancredi and Dr. Annibal Silveira are in charge of the lectures and practical demonstrations of the course.

The Hospitals of the City of Rio de Janeiro

The city of Rio de Janeiro (Federal District) has at present ninety-five hospitals, adding up a total of 18,211 beds, with an average of 191.7 beds per hospital. For the population of 1,950,000 these figures correspond to 20,526 persons for each hospital and 107 persons for each bed. The largest institutions are the Misericórdia General Hospital (991 beds), the Portuguese General Hospital (585 beds), the Juliano Moreira Suburban Psychopathic Colony (2,800 beds), the Army Central Hospital (868 beds), the Carupaity Suburban Leprosarium (594 beds) and the St. Sebastião Tuberculosis Hospital (500 beds). These hospitals are divided into three main groups: the private institutions, of which there are sixty-seven with 7,101 beds (or 105.9 per hospital), the federal institutions, numbering eleven with 7,530 beds (or 684.5 per hospital) and the municipal institutions, seventeen with 3,580 beds (or 210.6 per hospital).

According to the specialties, these institutions are divided into thirty-eight general hospitals with 8,112 beds, nine hospitals for surgery only with 423 beds, five children's hospitals with 414 beds, thirteen maternities with 532 beds, seventeen psychopathic hospitals with 6,519 beds, ten hospitals for the tuberculous with 1,403 beds, one for the isolation of acute transmissible diseases with 90 beds, and two for the leprosy with 718 beds. Among the general hospitals three are military, the Army Central Hospital with 868 beds, a navy hospital in an island of the bay with 434 beds, and the small but good Central Hospital of the Air Ministry with 181 beds, where several American service men have been treated. There are at present annually

in Rio de Janeiro about 36,000 births, 6,200 deaths from tuberculosis, 6,000 deaths of infants and 12,000 known cases of acute transmissible diseases (and about 30 per cent more of unknown cases). The largest number of beds for mental cases are in federal hospitals, because these hospitals are included in the Division of Mental Hygiene of the National Department of Health. An ambitious plan of extension and improvement in the hospitals of Rio de Janeiro is now being carried out by the city administration. A modern municipal general hospital with about 600 beds is almost completed. This hospital will be known as the Pedro Ernesto Hospital, the name of a popular physician who was mayor of Rio de Janeiro from 1931 to 1935.

Extension of the Area of Visceral Leishmaniasis in South America

Dr. Madureira Pará, pathologist of the Laboratory of the Rockefeller Foundation in Rio de Janeiro, has confirmed a diagnosis of visceral leishmaniasis after the examination of the material sent from a case in the republic of Colombia by Dr. Augusto G. Gast of the Service of Viscerotomy of the Division of Special Studies of the Ministry of Labor, Hygiene and Social Welfare. During his routine of viscerotomy in connection with the yellow fever work, Dr. Gast found a sample of liver taken from the dead body of a 3 year girl from San Vicente de Chucuri, Santander, Colombia, with abundant forms of Leishmania. Since this would be the first case of infantile kala-azar registered in the country, the material was sent for a more careful examination to the Rio de Janeiro laboratory. The case occurred in a rural mountainous district at the altitude of some 2,650 feet, the mean annual temperature of which is 73 F. The epidemiologic study made by Dr. Santiago Rengifo demonstrated the presence of Phlebotomus in the region. It is interesting to point out the coexistence of a case of cutaneous leishmaniasis in a young sister of the victim, as well as the frequency of this type of skin lesions in the same district.

A New School of Public Health

The Institute of Hygiene of the University of São Paulo, where a postgraduate course in public health and hygiene was given for several years, has now been transformed into a School of Public Health and Hygiene under the direction of Dr. Paula Souza, who holds a diploma of doctor in public health from the Johns Hopkins University. This is the first university school of the kind to exist in this country. Drs. Borges Vieira, P. Egydio de Carvalho, Alcantara Machado, Alexandre Wancolle, Lucas Assumpção and Arthur A. Whitaker are professors at the new school. Dr. Paula Souza, still absent in the United States, has just served as a member of the delegation of Brazil at the world security conference of San Francisco.

Meeting of Brazilian Ophthalmologists

The twenty-third annual meeting of the Brazilian Society of Ophthalmology will be held at Rio de Janeiro from the 1st to the 6th of September. The principal subjects to be discussed at the meeting are the treatment of ocular syphilis, operation of strabismus, plastic surgery of the orbit, sutures in the operation of cataract, binocular vision in the strabismus and the fundus oculi in the infant. During the meeting Dr. Mendonça Barros of São Paulo will present an extensive report on the present conditions of ophthalmology in the United States, which he recently visited.

Personal

Dr. Hugo Pinheiro Guimarães has been inaugurated as president of the Brazilian College of Surgeons for the year 1945-1946. Dr. Guimarães is professor of surgery at the University of Rio de Janeiro. Dr. Barbosa Vianna, the retiring president, is professor of clinical orthopedics at the same university.

Brief Items

Mr. José Martinelli, a businessman of Rio de Janeiro, has donated a sum corresponding to \$250,000, and a valuable parcel of land, to the Cancer Division of the National Department of Health, in cooperation with the government in the campaign against cancer.

Dr. Deolindo O. Couto has been appointed professor of clinical neurology at the University of Rio de Janeiro. Dr. Couto was formerly associate professor of neurology at the same university and physician of the National Psychiatric Hospital of Rio de Janeiro.

Dr. Emilio Mira y Lopez, professor of neuropsychiatry at the University of Barcelona and director of the Psychotechnic Laboratory of that city, is now at Rio de Janeiro. Invited by the Brazilian government, Dr. Mira y Lopez will give a short course of lectures and practical demonstrations on the myokinetic method of psychodiagnosis. The subjects of some of these lectures will be new directives of psychiatry, mental hygiene of adolescence, some results of the work of the Psychotechnic Laboratory of Barcelona and measurement of aptitudes for vocational guidance. The Spanish physician has been honored by the University of Rio de Janeiro and by the Brazilian Society of Neurology and Psychiatry.

Dr. Beatrice Berle, wife of the American ambassador at Rio de Janeiro and herself a distinguished physician, has given a lecture at the Misericórdia Hospital on the psychosomatic correlation in the diseases of the digestive system, particularly peptic ulcer. The lecture was accompanied by the presentation of some interesting patients by Dr. Figueiredo Mendes.

Several new services have been inaugurated at the Hospital Moncorvo Filho, a municipal institution of Rio de Janeiro: the blood bank, the division of ophthalmology, the division of otorhinolaryngology and the division of necropsies.

An intensive campaign of rural health instruction, conducted by the Division of Health Education of the Special Service of Public Health, has begun in the state of Pará, in the Amazon valley, under the supervision of Dr. Charles Wagley. Several mobile units of moving picture projection are being used.

Dr. Tarquinio Lopes Filho, a practitioner of medicine at Rio de Janeiro since 1909, died recently at the age of 64.

Dr. Alfredo Souza Mendes of Rio de Janeiro died recently at the age of 59.

Marriages

CHARLES LYMAN JORDAN JR., Kinston, N. C., to Miss Florence Fisher Henszey of Philadelphia in Atlanta, Ga., June 23.

JOEL BERNARD HOBERMAN, Arlington, Va., to Miss Sally Winn Chappellear at Braddock Heights, Md., July 4.

RANDOLPH HARRISON HOGE, Richmond, Va., to Miss Florence Irene Elks of Weldon, N. C., June 23.

CHAMPE C. POOL, Charleston, W. Va., to DR. MARJORIE BIRD KISHPAUGH of Hershey, Pa., recently.

RICHARD A. FEWELL, Philadelphia, to Miss Mary White McNeely of Coolemece, N. C., June 20.

FRANK A. McCUE, Bluefield, W. Va., to Lieut. Betty Barron of Watervliet, N. Y., April 20.

STAFFORD L. NORMAN, Coleman, Texas, to Miss Mattie Ellen Hood of Jacksonville, May 15.

MYRON DUANE MATTISON to Miss Elizabeth Milton Weaver, both of Durham, N. C., June 29.

VIRGIL C. HART to Miss Virginia McGunigal, both of Youngstown, Ohio, March 12.

ROY ALLEN HARE to Miss Myrtle Frances Brandon, both of Durham, N. C., June 20.

WILLIAM T. MOSS, Columbia, Mo., to Miss Rose Daily of Kansas City, June 28.

FREDERICK F. GARRISON, Aurora, Ill., to Miss Myrtle Joy in Loami, July 4.

Deaths

Hugh Hampton Young ☉ eminent urologist, died in the Brady Clinic, Johns Hopkins Hospital, Baltimore, August 23, aged 74.

Dr. Young was born in San Antonio, Texas, Sept. 18, 1870. In four years at the University of Virginia he received the A.B., A.M. and M.D. degrees, graduating at the medical school in 1894. He spent the following year in graduate work at the Johns Hopkins Hospital. He then served as bacteriologist and pathologist at the Thomas Wilson Sanatorium, returning to the Johns Hopkins Hospital as intern, assistant resident surgeon and associate in surgery from 1895 to 1914. In 1897 Dr. Young assumed charge of the dispensary of genitourinary diseases at the hospital, launching a long career devoted to this specialty. In 1915 he became director of the newly opened James Buchanan Brady Urological Institute, the gift of "Diamond Jim" Brady, on whom Dr. Young had performed a prostatectomy in 1912.

During his career he held various teaching positions at the Johns Hopkins University School of Medicine, becoming emeritus professor of urology in 1942, the year he retired as director of the Brady Clinic. His scientific achievements include the creation of the perineal prostatectomy, for which he devised special instruments, the radical operation for cancer of the prostate, the invention of the cystoscopic rongeur and an instrument for placing radium in bladder tumors.

Other accomplishments include his successful activities as a citizen. In 1903 he was credited with influencing the passage of bills which had a nationwide effect in the campaign against tuberculosis; he was also active in the creation of the National Institute of Health and as chairman of the Maryland State Lunacy Commission and of the state board of mental hygiene, into which it later developed. Dr. Young was credited with the passage of numerous bills improving the mental hygiene structure of the state.

Dr. Young was a member of numerous scientific groups, serving as president in 1909 of the American Urological Association, of which he was a charter member, and of the American Association of Genito-Urinary Surgeons, in 1912 of the Medical and Chirurgical Faculty of Maryland and in 1917 of the International Congress of Urology. He was secretary of the Section on Genito-Urinary Diseases of the American Medical Association from 1911 to 1913, serving as a member of the House of Delegates in 1910, 1914 and 1926. For years he had been chairman of the Maryland State Aviation Commission and with Governor Ritchie had been active in the selection of sites for airports. He had delivered famous lectures and had received various honors, including the Keyes Gold Medal of the American Association of Genito-Urinary Surgeons and the Amory Prize. A prolific contributor to the literature, he had also written a number of volumes on urology and had been editor of the *Journal of Urology* since he founded it in 1917. In 1940 he published his autobiography. He went to France in 1917 with the American Expeditionary Forces as director of urology, becoming senior consultant the following year. He received the Distinguished Service Medal.

His cultural pursuits were many. Throughout the years he had been at various times vice president of the Baltimore Museum of Art and president of the Baltimore Opera Club, the

Lyric Theater and the War Memorial which served to commemorate Maryland heroes of World War I. The opera club this year presented him with a silver remembrance carrying an inscription of his contributions of time and energy during its twenty-five years' existence. He had been chairman of the Maryland commission of the New York World's Fair and commodore of the Gibson Island Yacht Squadron.

Dr. Hugh Young was the valued friend of many leaders in public life, a physician to several presidents of the United States, a man of boundless drive and dynamic enthusiasm. He gave spirit and leadership to every one of the many activities in which he participated.

Paul Brown Welch ☉ Coral Gables, Fla.; University of Illinois College of Medicine, Chicago, 1913; born in Wauneta, Kan., in 1889; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; interned at the Cook County Hospital in Chicago; formerly an instructor in internal medicine at his alma mater

and an instructor of gynecology and obstetrics at the Rush Medical College in Chicago; on the visiting staff of St. Francis Hospital in Miami Beach; served as chief gastroenterologist at the James M. Jackson Memorial Hospital in Miami, where in 1938 he served as president of the staff and where he died May 6, aged 55, of coronary thrombosis.

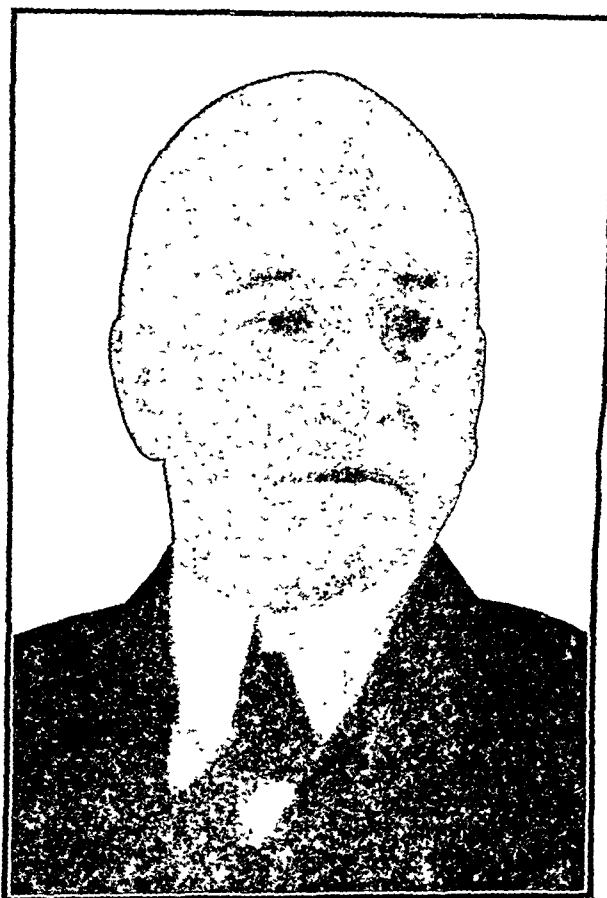
Millard Freeman Sewall ☉ Bridgeton, N. J.; Jefferson Medical College of Philadelphia, 1903; born in York, Maine, Sept. 28, 1878; fellow of the American College of Surgeons; served during World War I; formerly an intern at St. Agnes Hospital and resident physician at Girard College, both in Philadelphia; for many years chief of surgical staff at Bridgeton Hospital; past president of the Cumberland County Medical Society and the Tri-County Medical Society; honorary member of Cape May County Medical Society; chief of local emergency defense corps; served on the Selective Service board; died June 4, aged 66, of cerebral hemorrhage and thrombosis.

Thomas Francis Welsh, Salt Lake City; Creighton University School of Medicine, Omaha, 1925; born in Park City, Utah, April 22, 1900, member of the American Medical Association, American Academy of Ophthalmology and Otolaryngology, Western Ophthalmological Society and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; served on the staffs of the Holy Cross and St. Mark's hospitals; consultant at the Veterans Administration Facility; died May 13, aged 45, of coronary occlusion.

Richard Metcalf ☉ Winthrop, Mass.; Tufts College Medical School, Boston, 1913; died May 21, aged 5, of coronary thrombosis.

Mack L. Ross, Topeka, Kan.; Meharry Medical College, Nashville, Tenn., 1913; member of the American Medical Association; on the staffs of St. Francis Hospital and Christ's Hospital, where he died May 21, aged 66, of acute myocardial failure.

George W. Walbright ☉ Metropolis, Ill.; University of Louisville (Ky.) School of Medicine, 1931; coroner of Mascout County; served in the medical corps, Army of the United States, from Dec. 5, 1940 until Feb. 25, 1944, when he was honorably discharged because of physical disqualification; d. l. May 24, aged 37, of coronary thrombosis.



HUGH HAMPTON YOUNG, 1870-1945

DIED WHILE IN MILITARY SERVICE

William Tyson Bower, Philipsburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1942; served an internship at St. Luke's Hospital in Bethlehem; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 3, 1943; assigned to Company C, 93d Medical Gas Treatment Battalion; served in England, France and Belgium, participating in D day operations; promoted to captain; died in Germany April 21, aged 30, of injuries received in a vehicle accident.

Robert Bard Carpenter, Buffalo; University of Buffalo School of Medicine, 1934; interned at the Buffalo City Hospital; served a residency at the Edward J. Meyer Memorial Hospital; an assistant in medicine at his alma mater; entered the medical reserve corps of the U. S. Army as a first lieutenant June 13, 1934; began active duty Nov. 30, 1940 as a captain, promoted to major and lieutenant colonel; commander of the Twelfth Medical Training Battalion at Camp Pickett, Va., where he died Sept. 7, 1943, aged 34, of pulmonary embolism following an operation for an injury received in a fall on a stairway.

William Harold Chain, New Haven, Conn.; Long Island College Hospital, Brooklyn, 1923; formerly an intern at the Buffalo General Hospital in Buffalo and the Hospital of St. Raphael; served in France during World War I; began active duty as a captain in the medical corps, Army of the United States, on June 1, 1942; killed in an automobile accident near Camp Fanning, Texas, Aug. 30, 1943, aged 49.

Clyde Wallace Countryman, Spokane, Wash.; University of Oregon Medical School, Portland, 1924; member of the American Medical Association; interned at the St. Luke's Hospital in Spokane, Bingham Hospital in Bingham Canyon, Utah, and the Salt Lake County Hospital in Salt Lake City; served as secretary-treasurer of the Pacific Northwest Medical Association; began active duty as a major in the medical corps, Army of the United States, on July 5, 1942; later promoted to lieutenant colonel; died in Cuba May 5, aged 44, in an airplane crash.

Joseph Anthony Gadowski, Clinton, Mass.; Boston University School of Medicine, 1943; diplomate of the National Board of Medical Examiners; interned at St. Vincent Hospital in Worcester; began active duty as a first lieutenant in the medical corps, Army of the United States, on Dec. 31, 1943; died in eastern France January 2, aged 29.

Lewis Henry Jannarone, Belleville, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1939; served internships at the Essex Mountain Sanatorium in Verona and the Jersey City Hospital in Jersey City; began active duty in the medical reserve corps of the U. S. Army as a first lieutenant on Oct. 18, 1941; assigned to Station Hospital in Fort Benning, Ga.; later promoted to captain; died in the Walter Reed General Hospital, Washington, D. C., Oct. 31, 1944, aged 30, of malignant cholangioma.

Philip Joseph Lopresti, Oak Park, Ill.; University of Illinois College of Medicine, Chicago, 1941; interned at the Cook County Hospital in Chicago; entered the medical reserve corps of the U. S. Army as a first lieutenant on Aug. 1, 1941; began active duty in the same grade in the medical corps, Army of the United States, on Jan. 16, 1943; assigned to Station Hospital, Westover Field, Chicopee Falls, Mass.; later promoted to captain; died in Italy, February 2, aged 28, in an airplane accident.

Otis Milton Marsh, Minneapolis; University of Minnesota Medical School, Minneapolis, 1941; member of the American Medical Association; interned at the Minneapolis General Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 22, 1942; later promoted to captain; died in the Territory of Hawaii Dec. 24, 1944, aged 30, of pulmonary infarction.

Adolph Edwin Schecter, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1937; served an internship and residency at the Philadelphia General Hospital; assistant instructor in medicine at his

alma mater; began active duty in the medical corps, Army of the United States, as a captain on May 17, 1942; assigned to 20th General Hospital, Camp Claiborne, La.; served in North Africa, Sicily, Sardinia, Italy and France; died aboard ship returning to the United States March 28, aged 31.

Marshall Godfrey Seibel @ St. Louis; University of Louisville (Ky.) School of Medicine, 1929; interned at the New Haven Hospital in New Haven, Conn.; began active duty as a lieutenant commander in the U. S. Naval Reserve on July 29, 1942; died in the Pacific area Sept. 25, 1944, aged 42, of coronary thrombosis.

Charles George Sinclair @ Colonel, M. C., U. S. Army, Radburn, N. J.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1914; in 1916 graduated at the Army Medical School in Washington, D. C., where he had been instructor of pathology and bacteriology; formerly instructor in microbiology and pathology, Army School of Nursing, Washington, D. C.; assistant professor of hygiene at the University of Michigan from 1911 to 1913; entered the medical reserve corps of the U. S. Army as a first lieutenant in August 1915 and the medical corps of the regular army in May 1916; rose through the various ranks to that of colonel; served in the Mexican punitive expedition and World War I; fellow of the American College of Physicians; served as chief in the laboratory service at Walter Reed General Hospital in Washington, D. C.; in charge of Sixth Service Command Laboratory at Fort Sheridan, Ill., and the Tripler General Hospital in Honolulu; an editor of *Biological Abstracts*; author of "Microbiology and Elementary Pathology"; died in the Percy Jones Hospital, Battle Creek, Mich., May 3, aged 55, of carcinoma adenomatousum with multiple metastases.

Eugene Willis Springer, Pontiac, Mich.; University of Michigan Medical School, Ann Arbor, 1936; member of the American Medical Association and the Iowa State Medical Society; interned at the Hurley Hospital in Flint, where he later served a residency in medicine; served a residency in ophthalmology at the University Hospitals, Iowa City; entered the medical reserve corps of the U. S. Army as a first lieutenant on June 20, 1938; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 13, 1942; later promoted to captain; died in Egypt February 23, aged 34.

David Brakenridge Stuart @ Roanoke, Va.; Medical College of Virginia, Richmond, 1924; interned at the Hygeia Hospital in Richmond; formerly on the staff of the Lewis-Gale Hospital; began active duty as a captain in the medical corps, Army of the United States, on July 25, 1942, in charge of a hospital train which evacuated wounded from the western front; went overseas in October 1943; promoted to major; died in Belgium April 14, aged 44, of arteriosclerotic heart disease.

Jehu Creed Walker, Savannah, Tenn.; University of Tennessee College of Medicine, Memphis, 1936; interned at the T. J. Samson Community Hospital in Glasgow, Ky., the Baptist Memorial Hospital in Memphis and the Spartanburg General Hospital in Spartanburg, S. C.; began active duty as a first lieutenant in the medical corps, Army of the United States (National Guard), in January 1941; assigned to Medical Detachment, 149th Infantry, Camp Shelby, Miss.; later promoted to major; flight surgeon with the Eighth Air Force; held the Air Medal and Bronze Star; killed in an aircraft crash in England April 12, aged 31.

Dwight Dunham Young, Santa Ana, Calif.; Columbia University College of Physicians and Surgeons, New York, 1928; member of the American Medical Association; fellow of the American College of Surgeons; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; in charge of obstetrics at the Orange County General Hospital and visiting obstetrician and gynecologist at St. Joseph Hospital, both of Orange; commissioned a lieutenant commander in the medical corps, U. S. Naval Reserve, in March 8, 1942; promoted to commander on Nov. 18, 1942; while in the Pacific, survived the sinking of the U. S. Transport *Little*; died in May, aged 42.

Correspondence

THE RELATION OF EFFORT TO ACUTE ATTACKS OF MYOCARDIAL INFARCTION

To the Editor:—In an article in THE JOURNAL, July 14, entitled "The Relation of Effort to Attacks of Acute Myocardial Infarction," Blumgart has challenged the work of my associates and myself. He believes that in a "small proportion" of cases strenuous exercise may induce coronary occlusion. We believe that in no instance is there any relation.

First one must distinguish clearly between myocardial infarction due to coronary occlusion and that occurring without this complete obstruction. Correct terminology is absolutely essential in discussions of this subject. I take it that Blumgart refers to coronary occlusion, since coronary thrombosis was found in the 4 patients that came to autopsy. In the other seven I am not so sure.

I am well aware that effort may precipitate myocardial infarction without coronary occlusion, induce heart failure and, in fact, cause sudden death. Coronary occlusion is something else again. It is the end result of arteriosclerosis, and no effort, trauma or emotion will produce it.

Blumgart believes that "myocardial infarction" is on the increase in the Army because of strenuous effort that military personnel are called on to perform. The cardiac deaths he reports among men in the Army do not prove his contention, because in civilian life medical examiners find "sudden and unexpected natural deaths" quite common (Helfern, Milton, and Rabson, M. S.: Sudden and Unexpected Natural Death, *New York State J. Med.* 45:1197 [June 1] 1945).

The arguments that appear in Blumgart's paper have been made before. Thus he repeats a paragraph written by Boas to make the point that effort may induce coronary occlusion. Here it is: "The fact that pneumothorax is due usually to pulmonary tuberculosis or to the rupture of an emphysematous bleb does not negate that it may follow trauma to the chest." My reply is simply this: Of course, trauma may cause pneumothorax, but neither pneumothorax nor trauma is under discussion.

Playing baseball, volley ball, running, hiking, marching and engaging in maneuvers, gymnastics and swimming are not necessarily unusual exertion for soldiers. Millions of army men undergo strenuous physical training, and such activities may well have become routine for them. In the eleven short case histories presented, a history of unusual effort is not definitely stated to have been elicited. Only in case 7 is there a suggestion that the run over an obstacle course may have been an unusual physical exertion, but even in this instance there is no statement that this officer had not made the "run" before.

If unusual effort induced coronary occlusion, men and women with coronary sclerosis would sustain this vascular disease daily by the thousands after any extreme effort. This is not so despite the fact that we repeatedly run for a train, move a piece of heavy furniture, pull with unusual effort at a stuck drawer, lift a heavy bundle or suitcase, shove through a crowded subway train or squirm and strain while parking a car in a small space in a crowded thoroughfare. If coronary occlusion were induced by strenuous effort, our life span would be 40 to 50 years, not 60 to 70.

The 11 cases cited in which there appears to be a time association between effort and coronary occlusion are incomplete stories. Although they are inconclusive they influence the reader who may not have an adequate basis of his own for deciding whether strenuous exertion is or is not an immediate

cause of coronary occlusion. He does not know of the hundreds of cases that the cardiologist has had in which coronary occlusion transpired during sleep, rest or mild and usual activity (Master, A. M.; Dack, Simon, and Jaffe, H. L.: Activities Associated with the Onset of Acute Coronary Artery Occlusion, *Am. Heart J.* 18:434 [Oct.] 1939; The Role of Effort, Trauma, Work and Occupation in the Onset and Subsequent Course of Coronary Artery Occlusion, *M. Ann. District of Columbia* 10:79 [March] 1941). In my four years of active service in the Navy I have not seen a single case of coronary occlusion etiologically related to effort.

Sustained and specialized experience leads me to the belief that, even in the rare situation in which there is an apparent time relation between unusual effort and the coronary occlusion, this relationship is not causal but mere coincidence which may be expected in the thousands of attacks of coronary occlusion which take place daily in this country (Master, Jaffe and Dack: The Prevalence of Coronary Artery Occlusion, *New York State J. Med.* 39:1937 [Oct.] 1939).

Let us analyze the 11 cases that are so seriously lacking in detail: "A captain in the Signal Corps, aged 41, collapsed on a hike and was dead at arrival to the hospital." What was the captain's condition before the hike? Isn't it just as logical to assume that he had experienced his coronary occlusion some time before he started his hike as to assume that the hike produced sudden collapse and death? Before important conclusions are drawn much more pertinent information is essential. Only 4 of the 11 patients came to autopsy. The other 7 gave electrocardiograms which were "characteristic." No mention is made of RS-T segment elevations, of Q waves, of reciprocal relationships of leads 1 and 3, so specific for coronary occlusion. Despite our deep respect for the author's professional competence, we must insist that a scientific paper requires more precise data.

As was observed, Blumgart's arguments have been made before. Thus it has been said that since intimal hemorrhages are often observed in coronary occlusion, effort must be the cause. It is asserted that exertion raises blood pressure and this ruptures a subintimal capillary. Is this reasoning any better than concluding that exertion causes red blood cell destruction in the body, a process we ordinarily consider to be physiologically normal? Intimal hemorrhages (Winternitz, M. C.; Thomas, R. M., and Le Compte, P. M.: The Biology of Arteriosclerosis, Springfield, Ill., Charles C Thomas, 1938) are but a part of the process of arteriosclerosis.

Blumgart cites that Henry Horn and L. E. Finkelstein (Arteriosclerosis of the Coronary Arteries and the Mechanism of Their Occlusion, *Am. Heart J.* 19:655 [June] 1940) show that coronary occlusion frequently results from subintimal hemorrhage. However, these authors specifically stated that increased blood pressure following effort played no role in the production of intimal hemorrhage. We have reported intimal hemorrhage at autopsy to be as frequent in coronary disease in patients without hypertension as in those with increased arterial tension (Master, Dack and Jaffe: The Role of Effort, Trauma, Work and Occupation in the Onset and Subsequent Course of Coronary Artery Occlusion). The hemorrhages have been observed just as frequently in patients who have been bedridden for weeks before the coronary occlusion, suffering from cancer, lung trouble and heart failure, as in those who have had high blood pressure and were active before sustaining the coronary occlusion. If more evidence is required that bodily exertion is not a factor in subintimal hemorrhage of coronary sclerosis, I would cite Winternitz's work (Winternitz, Thomas and Le Compte: The Biology of Arteriosclerosis). He injected fluid into the coronary arteries of men whose hearts showed advanced coronary sclerosis under the unheard of pressure of 500 to 1,000 mm. of mercury without producing intimal hemorrhage.

Over a period of years my associates and I have analyzed with utmost care the histories of 1,700 episodes of coronary occlusion and have come to the conclusion that this is an entirely fortuitous end result of progressive coronary arteriosclerosis. It is as frequent in the sedentary as in the physically active. Coronary occlusion is not related to effort, to occupation or to a particular social class. The percentage of attacks which occur during sleep, rest and mild or moderate activity coincides with the proportion of the twenty-four hours usually spent in these respective states. Only 2 per cent of the attacks were related in time to severe exertion. For the reasons given we concluded that the small percentage is expected coincidence. We find support in John Dewey's insistence that a sequence is not necessarily a consequence. But of course a simple attack of angina pectoris and myocardial necrosis without coronary occlusion must be differentiated sharply from the coronary occlusion, and they are induced by effort.

ARTHUR M. MASTER, M.D., St. Albans, L. I., N. Y.
Cardiologist, U. S. Naval Hospital.

NICOTINIC ACID IN VINCENT'S ANGINA

To the Editor:—In *THE JOURNAL*, July 7, are two interesting articles on the use of penicillin in Vincent's angina. From the experience of Captain Schwartz and of Major Shallenberger, Lieutenant Colonel Denny and Major Pyle there is no reason to doubt that penicillin is quite effective in acute cases of Vincent's angina. I am writing, not to question the effectiveness of penicillin, but to suggest that nicotinic acid (or niacin) or nicotinamide has been found by myself and a number of others to be just as effective as penicillin in such cases. Since it is much simpler to take a 50 mg. tablet three times a day than to have an intramuscular injection every three hours for five doses, or even to have penicillin applied locally every four hours, it seems logical to use nicotinic acid first.

So far as I know, J. B. King first called attention to the effectiveness of nicotinic acid in Vincent's disease in the *Lancet* 2:32 (July 13) 1940. For nearly four years I have been using it in all acute cases of Vincent's angina and have found it eminently satisfactory. The dose employed is 50 mg. three times a day for adults; for children, 10 mg. and upward according to age. A week's treatment is usually sufficient. The temperature in all my cases has subsided within forty-eight to seventy-two hours, and the smears have been negative within four to seven days.

WINGATE M. JOHNSON, M.D., Winston-Salem, N. C.

"PSEUDODOXIA PEDIATRICA"

To the Editor:—Your interesting editorial on pseudodoxia pediatrica (*THE JOURNAL*, July 28, p. 955) prompts me to write you that here in Vinton County, Ohio, in the past twelve years I have delivered in homes comparable to those served by the Frontier Service 1,300 babies without a maternal mortality. In this series there were four cesareans done in hospitals, the only ones in the series. The infant mortality is unusually low.

Since the advent of the sulfonamides I have not seen a tympanic membrane go to rupture and have not had a mastoid that required surgery, nor have I done a myringotomy.

Alone down here the past three years it is encouraging to read that we are doing things comparable to other sections, and it is also further evidence that rural communities are in most cases as well off medically as the larger cities.

H. D. CHAMBERLAIN, M.D., McArthur, Ohio.

THERAPEUTIC USE OF ARTIFICIAL RADIOACTIVITY

To the Editor:—During the past several years the artificially produced radioactive elements have become available for use in biologic and medical research as "tracers." So-called tracer doses of these elements, in metabolic studies, are supposedly so small that there is apparently no danger of harm to the organism either immediate or delayed. However, these elements are also being used with success at several centers in this country and abroad by intravenous injection in larger or therapeutic doses for the treatment of certain diseases such as hyperthyroidism (radio iodine), leukemia (radio phosphorus), polycythemia vera (radio phosphorus) and metastatic bone tumors (radio strontium). Some workers, after a short experience in the therapeutic use of these substances, have become a bit too enthusiastic regarding their value. As far as I am aware, no "cures" have been accomplished. The immediate dangerous possibilities of any form of irradiation (x-rays, gamma rays, radium, artificial radioactivity) are well known to most physicians, but in addition there are possible delayed effects. Cases of aplastic anemia and osteogenic sarcomas have developed after many years among radium dial painters, and it is possible to induce delayed neoplastic change in animals by roentgen or other forms of irradiation. Thus, such larger doses can be harmful. However, in the hands of experienced personnel these dangers can be appreciated and damaging effects avoided. Consequently the therapeutic use of artificial radioactivity must be carefully controlled with these dangers constantly kept in mind. It should be stated that so far there has been no definite evidence of any of these delayed effects as far as I am aware, but these possible complications should always be kept in mind in deciding whether a radio element should be used in therapy. It is this point which I wish to emphasize.

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Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, Aug. 25, page 1249.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, Nov. 12-14. Part III, New York City, Oct. 15-17; Boston, Oct. 16-17. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Various centers, Jan. 18. Final date for filing application is Oct. 20. *Oral*. Various centers, Oct. 1946. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 24.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, May 27. Final date for filing application is Feb. 1. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written*. Part I. Various centers, Feb. 2. Final date for filing application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 4-6; Jan. 18-22 and Los Angeles, Jan. 28-Feb. 1. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 3-6 (canceled). Spring 1946. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Oct. 19. *Oral*. New York, Dec. 7-8. Sec., Dr. C. A. Aldrich, 115½ First Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Part I. Spring 1946. Final date for filing application is Dec. 1. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*. Various centers, Dec. 9. *Oral*. Chicago, February 1946. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Cancer Research, Baltimore

5:321-384 (June) 1945

- Incidence of Adrenal Cortical Carcinoma in Gonadectomized Female Mice of Extreme Dilution Strain: III. Observations on Adrenal Glands and Accessory Sex Organs in Mice 13 to 24 Months of Age. G. W. Woolley and C. C. Little.—p. 321.
- Porphyrin Excretion of Harderian Glands in Its Relation to Actinic Carcinogenesis in Hairless Rats. W. C. Hueper and F. H. J. Figge.—p. 328.
- Influence of Epidermal Cornification on Carcinogenesis in Hairless Rats. W. C. Hueper.—p. 331.
- Carcinogenicity of m'-Methyl-p-Dimethylaminoazobenzene and of p-Monomethylaminoazobenzene. Janet E. Giese, J. A. Miller and C. A. Baumann.—p. 337.
- Recovery of Carcinogenic Hydrocarbons from Solution by Use of Picric Acid. R. N. Jones and J. R. Jamieson.—p. 341.
- Influence of Unsaturated Dibasic Acids on Induction of Skin Tumors by Chemical Carcinogens. H. G. Crabtree.—p. 346.
- Milk Induced Mammary Carcinoma in Mice. C. D. Haagensen and H. T. Randall.—p. 352.
- Studies on Variation of Rous Sarcoma Virus Following Growth of Tumor in Anterior Chamber of Guinea Pig Eye. E. W. Shrigley, H. S. N. Greene and F. Duran-Reynals.—p. 356.
- Metabolic Studies on Leukemic Mice with Aid of Radioactive Phosphorus. K. G. Scott.—p. 365.
- Incidence of Malignant Tumors in British West Indian and Panamanian Negro Autopsy Populations. W. J. Tomlinson and L. A. Wilson Jr.—p. 368.

Journal of Thoracic Surgery, St. Louis

14:187-264 (June) 1945

- Surgical Treatment of Lesions of Lower Esophagus and Upper Stomach. H. H. Bradshaw and J. F. O'Neill.—p. 187.
- Readhesion After Intrapleural Cauterization. R. J. C. Maxwell.—p. 194.
- Presteral Cyst: Report of Case. W. D. Seybold and O. T. Clagett.—p. 217.
- Question of Pulmonary Damage with Artificial Respiration. O. S. Orth, Rosaline L. Wilhelm and R. M. Waters.—p. 220.
- *Lung Abscess Caused by Bacteroides Necrophorus: Report of Case with Autopsy. W. P. Callahan, P. R. Beamer and A. R. Valle.—p. 231.
- Significance of Fluid in Pleural Space: Study of 274 Cases. W. S. Tinney and A. M. Olson.—p. 248.
- Cystic Lymphangioma of Mediastinum. S. Sanes, J. E. Macmanus and G. N. Seatchard.—p. 253.
- *Nontuberculous Lung Abscess in Children: Survey of 64 Cases. V. D'Ingianni.—p. 258.

Lung Abscess Caused by Bacteroides Necrophorus.—

Spontaneous infections with Bacteroides necrophorus occurring in domestic animals and birds producing an acute type of necrotizing inflammation of the mucous membranes, skin, lungs and liver are well known to veterinarians, but human infections with this organism are rare. Callahan and his associates report a case of lung abscess in a man whose occupation of wool and fur buyer brought him in contact with green hides of cattle and sheep, which was possibly the source of infection. The history of a sore throat, which subsequently disappeared, followed by signs of pulmonary disease and the subsequent development of a lung abscess, lends strength to the idea that the infection was air borne. The absence of lesions on the surface of the body plus a history of sore throat and the finding of a purulent exudate on the inflamed tonsils suggests that this was the port of entry of the organism into the body. The mechanism of the formation of the abscess in the lower lobe of the right lung was probably the aspiration of infected material. The disease process was confined to the respiratory system and there was an attempt on the part of the host to heal the infection by the formation of a dense wall of fibrous tissue around the abscess cavity. Rupture of the abscess into a bronchus occurred, with

spread of infection to other lobes of the lungs. A gram-negative, pleomorphic rod with filamentous and coccobacillary forms was isolated from the pulmonary lesions at necropsy. This organism was an anaerobe. Pathogenicity for rabbits, guinea pigs and mice was demonstrated. A rabbit was hyperimmunized with a known strain of Bacterium necrophorum and the obtained serum agglutinated the recovered organism in dilutions of 1:320 and the specific antigen in dilutions of 1:640. On this evidence the organism was classified as Bacteroides necrophorus. Infections with Bacteroides necrophorus are probably more common than previously supposed.

Nontuberculous Lung Abscesses in Children.—Of 417 cases of lung abscess reviewed by D'Ingianni 64 occurred in children aged 13 years or younger. Etiologic factors in these 64 cases included pneumonia, tonsillectomy, otitis media, whooping cough, aspiration of mucus or of a peanut, diphtheria and the like. The abscesses were most frequent on the right side and in the lower lobes. Sixteen of the patients had multiple abscesses, and 14 of these died. Of the 42 with single abscess 11 died, 10 remained unimproved and 21 were improved. In the remaining 6 it was not stated whether the lesion was single or multiple. The treatment was chiefly symptomatic; only 3 patients received surgical treatment. Of these 1 died. Of the 8 treated with sulfanilamide 5 died. The mortality rate for the entire group was 40.6 per cent. The high mortality indicates that palliative therapy is inadequate. The rigid cavity, with tissues fixed to a bony wall by adhesions, and the fibrous tissue in the bronchi form a rigid fibrous mass about the abscess. Extirpation of the diseased tissue seems a more feasible therapy.

Michigan State Medical Society Journal, Lansing

44:425-528 (May) 1945

- Periportal Vascular Disease. G. de Takats.—p. 477.
- Rehabilitation Program for Military Veterans. F. H. Krusen.—p. 48.
- Obstetric Hemorrhages. F. H. Falls.—p. 489.

44:529-640 (June) 1945

- Organic Digestive Disturbances in Early Life. F. Farber.—p. 587.
- Michigan Rapid Treatment Center. N. W. Ryan.—p. 594.
- What We Have Learned About Aviation Medicine. C. J. Clark and H. Britton.—p. 597.
- Sulfonamide Resistant Gonorrhea. A. W. Frisch.—p. 600.
- Pneumococcus Type III Meningitis Complicating Diabetes Mellitus: Recovery with Chemotherapy and Penicillin. J. L. Dill.—p. 603.

New England Journal of Medicine, Boston

232:665-690 (June 7) 1945

- Lymphosarcoma of Bowel in Childhood. G. D. Cutler, R. B. Stark and H. W. Scott.—p. 666.
- *Shock in Acute Infections. H. D. Warren, V. G. Balboni, F. T. Rogliano and A. Feder.—p. 671.
- Ophthalmology. E. B. Dunphy.—p. 675.
- Splenitis, Acute and Chronic, with Marked Splenomegaly. E. M. Chapman.—p. 681.
- Hepatoma with Metastases to Lungs, Adrenal Glands and Vertebrae. B. Jacobson.—p. 684.

232:691-718 (June 14) 1945

- Pseudodoxia Pediatrica. H. Bakwin.—p. 691.
- Evaluation of Sulfonamide Ointment Bases. R. W. Howard.—p. 693.
- Undescended Testicle. W. C. Quinby.—p. 701.
- Periarthritis Nodosa, Involving Especially Heart and Lungs. F. M. Rackemann.—p. 704.
- Carcinoma of Stomach with Metastases to Regional Lymph Nodes, Pleura, Lung, Pericardium, Peritoneum and Vertebrae: Lymphatic Spread of Pulmonary Metastases. W. Richardson.—p. 708.

Shock in Acute Infections.—Warren and his co-workers discuss the form of shock that occurs with acute infections. This syndrome is manifested by apathy, cold clammy skin, shallow respirations, a thready rapid pulse and low blood pressure. Shock of the so-called secondary type, or what may be better termed "cold shock," during the course of acute infection is due to failure of the peripheral circulation with pooling of the blood in the capillaries. The authors report 3 cases typical of the therapeutic problems presented by three serious infections. The first case was one of severely toxic scarlet fever. The temperature and some of its toxic manifestations were controlled by intravenous administration of pooled convalescent scarlet fever serum. However, the tone of the vascular system did not return until the fourth day, and during that time intravenous fluid and plasma were necessary to maintain the blood

pressure at a critical level. The second case was a fulminating meningococcemia with a massive invasion of the blood stream by bacteria and bacterial products. Many of these patients die in severe shock before the infection can be controlled by chemotherapy. In this case it was possible by the use of intravenous fluid and plasma to maintain the circulating blood volume and blood pressure at a critical level until the infection could be controlled by sulfadiazine. In the third case, one of type III pneumococcal pneumonia, the circulating blood volume was maintained by intravenous plasma and fluids while the infection was being treated with sulfadiazine and type III antiserum. The institution of specific measures to combat the infection is of primary importance, since they are directed at the cause of the shock state. Death in the early stages of acute fulminating infections may occur as a result of secondary shock. If vigorous antishock therapy directed to maintain an adequate circulating blood volume is resorted to, many patients may be maintained until specific serum or chemotherapy or both have been able to control the infection.

New Jersey Medical Society Journal, Trenton

42:167-204 (June) 1945

- Fatal Reaction Following Intravenous Injection of Mercupurin: Review of Literature and Report of Case in Which High Environmental Temperature Was a Contributing Cause. S. Ben Asher—p. 174
Resolution on Misuse of Barbituric Acid Derivatives. J. L. Mahaffey.—p. 178.
*Further Evidence of Relationship Between Herpes Zoster and Varicella. E. C. Kern—p. 179
Better Test Meal. M. A. Ogden—p. 180

Herpes Zoster and Varicella.—A woman aged 81 visited and cared for a small boy who had just recovered from chickenpox. She held the boy on her lap and read to him for several hours. She noticed that the child still had conjunctival irritation and photophobia. Six days later the woman developed a painful red area on the right side of her forehead and two days later she had a typical herpes zoster lesion involving the right supraorbital region. There was some conjunctival injection, a slight cloudiness of the cornea and a very slight ciliary injection. Pain disappeared in five days. The woman had never had chickenpox. Kern suggests that doctors treating either disease should warn those close to the patient of the infectious nature and point out to older persons the danger of contracting herpes zoster after exposure to chickenpox.

Public Health Reports, Washington, D. C.

60:633-660 (June 8) 1945

- Incidence of Poliomyelitis in the United States in 1944. C. C. Dauer.—p. 633
Studies of Acute Diarrheal Diseases. XV. Agglutination Test in Shigella Paratyphenteriae Infections. J. Watt and Thelma M. DeCapito—p. 642.

60:661-692 (June 15) 1945

- Influence of Casein and Other Agents on Production of Renal Lesions in Rats by Sulfadiazine and Acetylsulfadiazine. A. Kornberg, K. K. Endicott, I. S. Daft and W. H. Sebrell—p. 661.
Public Health in Greenland. S. M. Wingo—p. 676

Southern Medical Journal, Birmingham, Ala.

38:367-442 (June) 1945

- New Approach to Basic Supportive Therapy in Rocky Mountain Spotted Fever. G. T. Harrell, W. A. Wolff and W. Venning—p. 367.
Chemotherapeutic Studies in Rickettsial and Virus Diseases. H. Pinkerton—p. 371
Pancreatitis: Analysis of 22 Cases. W. M. Johnson and O. T. Davis.—p. 373
Technical Details in Dermotome Grafting. I. T. Wallace—p. 380
Cesarean Section Under Spinal Anesthesia. A. Hakeeb and H. R. Elliott—p. 381.
Intercurrent Eclampsia: Analysis of 52 Consecutive Cases Without Maternal Fatality, with a Special Note on Termination of Pregnancy in Antepartum Eclampsia. R. E. Arnell and S. L. Watson—p. 386.
Importance of Endocervicitis in Urologic Tract Infections. J. A. Seaman—p. 398
Treatment of Acute Gonococcal Pelvic Inflammatory Disease in the Female with Penicillin. L. A. Gray—p. 405
Use of Penicillin in Certain Eye Diseases. J. F. Hardisty—p. 411
Physical Medicine: Its Importance in Rehabilitation Program. F. A. Jostes—p. 413
Colles' Fractures. J. W. White—p. 415
Suggested Formula for Financial Aid to Local Health Jurisdictions. W. K. Sharp—p. 417.
Future of Psychiatry in Medical Education. T. A. Watters—p. 424.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

53:163-216 (June) 1945

- Gastric Adenomas: Pathologic Study. J. H. Rieniets and A. C. Bróders.—p. 163
Sterility. O. S. Krebs—p. 171.
*Pregnancy in the Diabetic. L. J. Palmer and R. H. Barnes—p. 195
*Results of Convulsive Shock in Approximately 1,000 Patients. P. S. Wolfe.—p. 203.

Pregnancy and Diabetes.—Palmer and Barnes discuss 68 pregnancies occurring in 41 diabetic women treated at the Mason Clinic during the fourteen years previous to June 1944. The majority of the observations were made during the past six years. Thirty-seven of the pregnancies terminated under their care and 31 terminated elsewhere. Among the 37 pregnancies there were 26 fetuses which reached the age of viability, and there were 22 living children. This number represents 60 per cent of the 37 pregnancies terminated under their care, and 84.6 per cent of these pregnancies which reached the age of viability. Eleven of the 37 pregnancies terminated spontaneously or were terminated intentionally before viability. The authors think that unless future use of substitution endocrine therapy changes the present situation, cesarean section at the thirty-sixth week will be the method of delivery which will produce the highest percentage of fetal survival. They stress that the very wide variation in the percentage of fetal survival is not totally explained by a difference in the manner in which the pregnancy and the diabetes were conducted. There are deeper and more fundamental reasons, and they emphasize that the greatest fetal and maternal (especially the former) risk occurs in the juvenile diabetic patient. Cerebral anoxemia frequently due to edema is the commonest cause of neonatal death, which is related directly to the diabetes. Control of the diabetes during pregnancy is usually relatively simple but must, if possible, be guided by frequent blood sugar determinations. Hormonal imbalance is rapidly becoming recognized as the most common cause of high fetal mortality and maternal morbidity. This imbalance is present in 60 to 70 per cent of pregnant diabetic women.

Results of Convulsive Shock.—Wolfe reports experiences in treating 1,021 patients over a six year period. These patients received a total of 1,313 courses and 11,104 individual shock treatments. Metrazol was used in 4,430 and electric shock in 6,674 treatments. Metrazol has been supplanted largely by electric shock because of its economy and convenience of administration, but there are occasional instances in which metrazol is still preferred. In selecting cases for treatment it is best to avoid those of long standing, and the affective reaction types are preferred to the schizophrenic patients. Many mental illnesses featured by depression respond well to convulsive shock therapy. Behavior problems in chronic psychiatric illness can be improved with shock therapy. It is desirable to try more conservative methods of management before resorting to shock treatment. Prolonged courses of about fifteen seizures are suggested for schizophrenic patients and for the manic patients who are slow to show improvement. For the sluggish schizophrenic patients, metrazol is more effective than electric shock. After shock treatment an observation period of at least two weeks is advised in which time psychotherapy is most effective, and in this period occupational and recreational therapies can be arranged. If a relapse is going to occur, it usually appears during this time. In manic patients a month of observation with a nonstimulatory regimen will prevent some relapses. Repetition of treatment following a relapse is worth consideration in manic depressive psychosis, especially in the depressive type, but it is of questionable value in schizophrenia. The cardiovascular system must be carefully evaluated for cardiac reserve and for evidence of toxic myocarditis before deciding to administer shock. Phlebitis, even if resolving, is a contraindication to treatment. The death rate in this series was 0.49 per cent. The results were best in the affective reaction types, the depressed manic patients responding even better than the manic types; in those with involutional depression and with senile depression the results were fairly good, while in those with schizophrenia with involutional paranoia and with psychoneurosis they were disappointing. Curare is a valuable aid in preventing fractures and dislocations, in allowing treatment in otherwise too risky patients, and it presents little additional hazard, especially if the antidote, neostigmine, is kept at hand.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

20:2-48 (March) 1945

- Century of Changes in Mortality and Incidence of Principal Infections of Childhood. A. H. Gale.—p. 2.
 Infantile Diarrhea: Analysis of 216 Cases, with Special Reference to Institutional Outbreaks. P. Gairdner.—p. 22.
 *Results of Routine Prophylaxis and Treatment of Rickets in Wartime Nurseries. D. Krestin.—p. 28.
 Renal Dwarfism: Record of Abnormalities in Carbohydrate Metabolism. M. L. Thomson and Vera K. Wilson.—p. 32.
 Congenital Hemiatrophy. Lilly H. Zondek.—p. 35.
 *Paroxysmal Tachycardia in Infancy. D. Leys.—p. 44.
 Congenital Malformation of Heart in One of Identical Twins. Kathleen McClintock.—p. 47.

Prophylaxis and Treatment of Rickets.—Krestin discusses the results of the routine administration of cod liver oil containing from 600 to 800 international units of vitamin D to the drachm (4 cc.), for the protection against rickets, and of this oil and a more concentrated preparation of vitamin D for infants with active rickets. In a series of controls under 12 months of age receiving no protective vitamin, two thirds developed rickets, whereas in a similar series between 1 and 2 years only 10.7 per cent developed the disorder. Control children over 2 years all remained free during the six months of observation. A daily dose of 1 drachm of cod liver oil (600 to 800 international units) failed to protect two thirds of infants under 6 months. Two drachms, or 1,500 international units, protected most and 3 drachms, or 2,100 international units, all infants under 1 year. About 11 per cent of infants between 1 and 2 years receiving 1,500 international units daily developed rickets, but all remained free on 3,000 international units. Infants under 1 year showing mildly active rickets were cured on 1,500 units of cod liver oil daily. Those between 1 and 3 years appeared to require doses up to 3,000 units. All infants showing severe rickets responded well to daily doses of 3,250 units in a concentrated preparation.

Paroxysmal Tachycardia in Infancy.—Leys presents the report of a girl baby who was hospitalized two months after birth because two days before she had been discovered in her cot looking "suffocated." She was red in the face, sweating and gasping for breath. After two hours she improved but later vomited her food. Subsequently she appeared to have spasms of pain and was restless all night and the following day; breathing was labored. The heart rate was found to be 240, with regular rhythm. The cardiogram showed auricular tachycardia. Chloral hydrate was given and, because an infection was suspected, sulfadiazine. The cardiac condition improved but signs of encephalopathy appeared and the child died. Lydia Fehily described a syndrome characterized by vomiting, abdominal pain, diarrhea, abdominal distention, stiffness of the neck and extremities and convulsions. She suggested that this syndrome is due to milk intoxication from mothers with beriberi. Leys has seen at least one attack of this kind in a breast fed infant. The resemblance between the two types of syndrome, (1) Fehily's infantile intoxication and (2) the syndrome of tachycardia with fever, leukocytosis and symptoms suggestive of encephalopathy, suggests a common cause, such as milk intoxication.

British Journal of Ophthalmology, London

29:221-276 (May) 1945

- Ophthalmology in Lagos, 1943. R. Walkingshaw.—p. 221.
 New Instrument for Dark Adaption Tests. W. Koch.—p. 234.
 Trachoma in West African Negroes. J. G. Scott.—p. 244.
 "Antiquity of Ophthalmology." W. B. I. Pollock.—p. 252.
 Review of Eye Disease in Central Asia. G. H. Pearson.—p. 260.

British Journal of Urology, London

17:1-44 (March) 1945

- *Cystometry. D. Band.—p. 1.

Cystometry.—Cystometry is a recent addition to methods of urologic examination. It implies a urologic examination of a spinal cord reflex. The bladder is a reflex organ, and the stimulus to contraction is the "stretch reflex" of the bladder

musculature. A technic for cystometry has been devised whereby the "stretch reflex" of the bladder may be studied as a kymographic recording of the bladder contractions. The normal cystogram is described and a classification is suggested for the various types of neurogenic bladder. Typical case neurogenic bladder illustrate the conformity of the cystometric interpretations of the neurologic symptoms and signs.

British Medical Journal, London

1:581-616 (April 28) 1945

- *Intravenous Arsenic in Treatment of Anginous Forms of Gland Fever, with Notes on Clinical and Laboratory Diagnosis. K. Shi Smith and T. H. Shaw.—p. 581.
 *Potent Anti-Rh Agglutinins Developed in Rh Negative Female A Multiple Transfusions of Rh Positive Blood. R. Drummond, G. Taylor and J. T. R. Edwards.—p. 584.
 The War Disabled: Their Emotional, Social, and Occupational Situation. E. Wittkower.—p. 587.
 Oxaluria in British Troops in India. J. M. Black.—p. 590.
 Intravenous Anesthesia with Pentothal Sodium. B. Solomons.—p. 59.
 Treatment of Soft Warts with Podophyllin. J. V. Macgregor.—p. 59.

Intravenous Arsenic in Glandular Fever.—According to Smith and Shaw, throat lesions of the anginous type of glandular fever may be among the most severe that can be encountered. Not only may there be massive edema accompanying the acute inflammation of the tonsils and neighboring structures, but these may become extensively ulcerated; considerable bleeding may ensue. Bronchopneumonia may develop and bring about a fatal issue. The authors employed nearsphenamine in the first case with the aim of countering a Vincent's infection which was believed to be complicating anginous glandular fever. The beneficial effect of the drug in this case prompted its use in cases 2 and 3 even though no Vincent's organisms had been found in the throats. In both rapid subjective and clinical improvement resulted, and similar results followed this therapy in the remaining cases. The immediate improvement in the local and general condition of the 6 cases and the subjective improvement indicate that the arsenical was beneficial. Nearsphenamine was given intravenously in doses of from 0.15 to 0.45 Gm. Local treatment is also important in anginous forms of glandular fever. Scrupulous attention to cleansing of the throat, teeth and gums is the first essential. Swabbing with hydrogen peroxide was the most effective local treatment in the acute stage, while applications of hot absorbent cotton or kaolin eased the pain in the neck. After the acute stage, and for residual ulceration of the tonsils, a paint made up of equal parts of liquor arsenicalis and tinctura ipecacuanhae was the most effective local application.

Development of Anti-Rh Agglutinins After Multiple Transfusions of Rh Positive Blood to Rh Negative Patient.—Drummond and his associates report results of multiple blood transfusions given a woman aged 47 with suspected thrombocytopenia. The Rh blood group was not ascertained. Five of the 6 donors used for the first three transfusions were Rh positive, while the Rh group of the sixth one was not known. The first diagnosis of Rh positivity was made on the third day after the third transfusion and was due to large numbers of surviving cells of the Rh+ donors in the recipient's blood. The next three transfusions were not complicated by febrile reactions although 2 at least of the 6 donors used were Rh+ and no incompatibility was observed in the cross matching tests. The reaction complicating the third transfusion was possibly hemolytic in nature, since there was no subsequent rise of hemoglobin. Hemolytic reactions complicated the seventh, eighth, ninth and tenth transfusions. The significance of these reactions was not at first apparent. Only in retrospect did the position become clear. It was because of the reaction and the agglutination observed in the cross matching tests in the tenth transfusion, and the failure of the patient to improve despite transfusions, that further investigations were requested. Only when the Rh negative diagnosis was made and the anti-Rh agglutinin discovered in the recipient's serum was the history reviewed and the facts placed in their true perspective. This case illustrates the importance of (1) ascertaining the Rh group of a recipient as a preliminary when multiple blood transfusions are contemplated, (2) the possible danger of being misled when an Rh negative recipient's blood gives an Rh+ reading after a blood transfusion and (3) never omitting cross matching tests.

Journal of Hygiene, London

44:67-148 (April) 1945

- Studies of Infant Mortality: Part I. Influence of Social Conditions in County Boroughs of England and Wales B. Woolf and J. Waterhouse—p. 67.
- Changes in Nuclear Structure of Bacteria Particularly During Spore Formation Emmy Klieneberger Nobel—p. 99
- Effect of Temperature of Incubation on Results of Tests for Differentiating Species of Coliform Bacteria C. B. Taylor—p. 109
- New Non Mannite Fermenting Dysentery Organisms of Flexner Group F. M. Berger—p. 116.
- Outbreak of Water Borne Typhoid Investigated by Bacteriophage Typing and "Selective" Sewage Examination. P. G. H. Gell, Betty C. Hobbs and V. D. Allison—p. 120
- Agglutination Tests in Diagnosis of Enteric Fever in the Inoculated. J. F. Wilson—p. 129.
- Practical Application of Immunologic Principles. Mollie Barr and A. T. Glenn—p. 135.
- Studies on Immunization by a Species Antigen. III Presence of Anti-Immunity Factor in Pneumococcus H. B. Day—p. 143

Medical Journal of Australia, Sydney

1:337-360 (April 7) 1945

- Diarrheal Diseases in New Guinea C. Fortune and A. A. Ferris—p. 337.
- Therapeutic Convulsions by Repeated Passage of Alternating Current, with Description of Apparatus Used H. M. Southwood and W. Torle—p. 344.
- Intramuscular Administration of Penicillin: Method That Entails Only One Needle Insertion Daily. R. S. Lutz—p. 347.

Proceedings of Royal Society of Medicine, London

38:237-308 (April) 1945

- Diagnosis and Treatment of Male Infertility K. M. Walker—p. 243.
- Experimental Fetal Death: Surviving Placenta. A. S. G. Huggett and J. J. Pritchard—p. 261
- Blood Electrolytes in Clinical Medicine President's Address E. N. Allott—p. 267
- Review of Surgical Treatment of Chronic Ulcerative Colitis. R. S. Corbett—p. 277

Medicina, Mexico

25:145-164 (May 10) 1945. Partial Index

- *Arterial Hypertension Modern Conceptions E. Cruz Coke—p. 154

Arterial Hypertension.—Cruz Coke established in animal experiments that hypertensin (angiotonin) and hypophysin are destroyed in vitro by the addition of pure iodine. The addition of cytochrome oxidase to a mixture of isotonic solution of three chlorides and hypertensin nullified the hypertensive effect of hypertensin during perfusion, and intravenous or intraperitoneal injection of cytochrome oxidase to animals with experimental hypertension produced either normalization of arterial blood pressure or a decided lowering. The hypotensive effect lasted for more than sixteen hours. In normal animals the injection of cytochrome oxidase did not affect the blood pressure. The author concludes that arterial hypertension is due to diminished respiration of tissues, which in turn stimulates production of hypertensin and slows destruction of this substance. Hypertensin and hypophysin are both hypertensive substances which can be destroyed by oxidation. The treatment of hypertension aims to restrict rather than to prevent the formation of hypertensive substances. It consists in administration of cytochrome oxidase and of catalyzers of oxidation. Food rich in tyrosine and in proteins is prohibited.

Khirurgiya, Moscow

9:1-96, 1944. Partial Index

- Modern Prostheses N. N. Priorov—p. 3
- Pathology and Pathogenesis of Shock N. A. Kraevskiy—p. 7.
- *Tissue Therapy of Indolent Wounds G. A. Berdichevskiy—p. 21
- Free Transplant of Full Thickness Graft T. M. Khitrov—p. 31.
- *Extraperitoneal Lumbar Sympathectomy for Causalgia P. S. Babitskiy—p. 34.

Tissue Therapy of Indolent Wounds.—Berdichevskiy reports 150 observations in which tissue therapy was resorted to in order to stimulate the healing of indolent wounds. Both homoplastic and heteroplastic tissues were used. All of the tissues proved effective. That taken from a thyrotoxic thyroid and fat tissue appeared to provoke a greater reaction. The tissue is kept for use in 0.5 per cent solution of phenol. More recently the author resorted to placental and amniotic tissue. The tissue is applied directly to the wound without any particular treatment of the wound or the ulcer. In the treatment

of trophic ulcers there were 25 per cent failures. The tissue applied to the wound does not suppurate; it undergoes lysis. The changes in the wound consist of rapid granulation and rapid epithelization.

Sympathectomy in Causalgia.—Babitskiy states that sympathectomy gives an early and permanent relief from causalgia. Causalgia of a lower extremity is best treated by the removal of the fourth, third and possibly second lumbar ganglia. Removal of the stellate ganglion and third dorsal is indicated in the causalgia of the upper extremity. In some cases more or less permanent relief was obtained by procaine hydrochloride blocking of the corresponding sympathetic ganglia.

Acta Chirurgica Scandinavica, Stockholm

90:179-274 (Aug.) 1944. Partial Index

- *Urinary Lithiasis in Childhood Clinical Study of 71 Cases. C. C. Winkel Smith—p. 179.
- Technic of Adrenalectomy for Genitoadrenal Syndrome During Childhood E. Dahl Iversen—p. 210
- Thrombosis Following Leg Injuries G. Bauer—p. 229
- Delayed Cholangiography and Treatment of Overlooked Stones by the Pribram Method T. C. Gertz—p. 249

Urinary Lithiasis in Childhood.—The material presented by Winkel Smith comprises 71 cases of urinary calculi in children up to the age of 14. The ratio of boys to girls was 3 to 1. The duration of symptoms before the diagnosis indicates that two thirds presumably have had the stones before the age of 5. The greatest majority of these children had either renal or ureteral stones, only a few had vesical and urethral calculi. Spontaneous passage of stones was observed in 26 cases, and in 12 of these there was no recurrence. Fifty-three of the patients underwent 63 operations. Primary nephrectomy was done in 7 cases, simple lithotomy in 36, and 9 of the patients were subjected to several operations. There was one surgical fatality. The recurrence percentage was 29 in infected and 11 in aseptic cases. Urinary lithiasis in childhood is not as rare as is generally assumed in the Scandinavian countries. Surgical intervention is advisable irrespective of age, because considerable damage to the urinary tract is likely to result.

Nordisk Medicin, Stockholm

22:1203-1270 (June 30) 1944. Partial Index

- Important Old Danish Clinical Reports I. Matthias Saxtorph: Ischuria Due to Retroflexion of Uterus. S. A. Gammeltoft—p. 1203.

Hospitalstidende

- Investigations on Elimination of Alcohol Through Lungs V. Eskelund—p. 1205.
- Intermittent Dropsy of Joints B. Suryanunoff—p. 1210.

Hygiea

- Shelf Operation on Hip G. Wiberg—p. 1213.

Svenska läkaresällskapets förhandlingar

- Fight Against Venereal Disease. R. Huss, E. Rietz, G. Willners and G. Hagerman—p. 1217.
- *Poliomyelitis Epidemiology in Light of Studies on Morbidity. G. Olin—p. 1235.
- *Pure Preparation of Different Poliomyelitis Viruses S. Gard—p. 1239
- Recovery in Larger Poliomyelitis Material R. K. Bergman and S. Orell—p. 1241.
- Sex Education in Schools C. W. Herlitz—p. 1244.

Poliomyelitis Epidemiology.—Olin reports that in the 8,288 with paralysis of 9,992 poliomyelitis cases in Sweden from 1930 to 1939 the mortality was 15.6 per cent. The morbidity was about 25 per cent higher in men than in women. The greater morbidity in predominantly agricultural communities depends mainly on greater morbidity in the age groups over 10. Increased resistance is believed to depend on latent immunization, which affects different categories of population in varying degrees.

Pure Preparation of Poliomyelitis Viruses.—Gard describes the successful purification by salting out and differential centrifugation of murine and human virus proteins and isolation from human stools and the intestinal contents of mice of protein substances which are similar to the neurovirus protein. No essential differences between the neurovirus and the intestinal virus or between active and inactive material from the intestinal contents could be established in study of the morphology of the preparations by electron microscopy.

Book Notices

Food for the World. Edited by Theodore W. Schultz. Cloth. Price, \$3.75. Pp. 353, with 8 illustrations. Chicago: University of Chicago Press; London: Cambridge University Press, 1945.

This book is not one person's views but a compilation of essays by twenty-two qualified authors followed by discussions. The material was presented at the twentieth institute of the Harris Foundation of the University of Chicago.

The six parts of the book are devoted to the food movement, population, nutrition, food supplies, international relations and consequences and policy. The arrangement is logical, and the general index is a further aid to the interested reader to find what he wants in this broad field. Even in countries that have an abundance of food, the diets of large sections of the population for the most part run counter to the knowledge and experience of present day advances in nutrition science and medical science. The war, with its extensive destruction of agricultural areas, farm equipment and transportation, and displacement of millions of people made peacetime unsatisfactory conditions even worse.

As far back as 1930 the League of Nations through its Mixed Committee laid the foundation for the movement for better food and nutrition as a public health measure. The work of the league had not advanced far enough and had not received the encouragement it deserved when the present war broke out. The matter of food was again brought to the world's attention at the conference on food and agriculture at Hot Springs in 1943 and presumably will not be missing from the deliberations by a suitable section of the several councils provided by the charter of the recently held San Francisco United Nations Security Conference. Governmental and voluntary international and national organizations again face the challenge of feeding those in the world who are hungry and furnishing the whole world with the kind of food that has the essential nutrients.

Some of the essays review the ever growing concern with food and nutrition. They describe the advances made in these fields and their relationship to health. They point out the population problems, rises and declines as caused by mortality, fertility and other factors, and ratios of populations to land. Attention is called to the estimate that more than one half of the world's two billion people are underfed. The essays deal with food consumption levels as influenced by the income of the individual or family, by the price of food, by degree of popular knowledge as to intelligent selection of food and by the supply of food in places where it is needed. In several places reference is made to agricultural surpluses in the past in the United States and the measures of government aiming at their balance. The point is well made that even abundance of food supply is adequate only when it contains the essential nutrients, and this aspect is important to any intelligently conceived and soundly applied food program.

The discussion on the advances already made in nutrition research only strengthens the need for continuation and extension of investigational projects not alone with animals but also with human beings. The areas that especially require intensive study are the vitamins and minerals.

Total War and the Human Mind: A Psychologist's Experiences in Occupied Holland. By Major A. M. Meerloo, M.D., F.R.S.M. Cloth. Price, \$1.75. Pp. 78. New York: International Universities Press, Inc., 1945.

The name of Major Meerloo is known to the medical profession as that of a competent psychologist and physician. He has written previously on such subjects as the psychology of pain and sorrow. For more than two years he lived under the German oppression. The story of life in Holland during those two years is a convincing personal narrative of that experience with the philosophical comment of a trained observer. He has analyzed Hitler's psychologic weapons and the morale that enabled the Dutch people to resist. A section on the psychology of radio propaganda should be studied by every one interested in the use of the radio as a tool for mass education. His prophylaxis for the next war bids fair to be realized in the new San Francisco charter. Coupled with such an international mechanism, he calls for active education in democracy.

Population Roads to Peace or War. By Guy Irving Birch, Director, Population Reference Bureau, and Elmer Pendell, Ph.D. Foreword and Postscript by Walter B. Ptkin, Ph.D. Paper. Price, \$1. Pp. 138. Washington, D. C.: Population Reference Bureau, 1945.

The main thesis of this book is that the differential fertility and mortality throughout the world is a force of great weight in the determination of economic, political and international policy both in peace and in war. The facts on which the book is based are well known to students of demography and have been publicized more widely to the general public in recent years. The authors are well qualified by previous experience in the field. The book is written for the intelligent layman and could be readily understood by him. The increase of 50 million in the population of India between 1930 and 1940 is one of those facts. The book discusses widely held fallacies about population, including the role actual and potential of migrations, sterilization and marriage standards. The principal conclusion is that satisfactory standards of living in peacetime cannot be effected without population limitation and that unless such measures become more widespread, especially in certain critical areas of the world, all attempts at international organization to prevent war inevitably will fail. The population facts as given in the booklet are based on the best available information; the conclusions and recommendations represent opinions held by the authors and by many other well informed persons. Whether or not all of them will stand the test of critical evaluation and of time remains to be determined, but they deserve the attention of all thoughtful citizens.

Physical Growth from Birth to Two Years. I: Stature. A Review and Synthesis of North American Research for the Period 1850-1941 [Including Appendix of 23 Tables]. By Howard V. Meredith, Ph.D., Robert R. Sears, Ph.D., editor, University of Iowa Studies, Studies in Child Welfare, Volume XIX, No. 407. Paper. Price, \$1.50. Pp. 255. Iowa City: University of Iowa Press, 1943.

This monograph presents much accurate information scientifically gathered which should be interesting and informative to the pediatrician as well as to the research investigator. The many authoritative abstracts on the relation of diet, disease and various physical abnormalities to stature makes a valuable treatise. The extensive bibliography should be very useful to any one undertaking such studies in the future on the differences and the effects of illness and dietary treatment. Part II is an annotated bibliography of all studies published in North America to 1942 and gives data on stature during the first two years of life. It represents much more work than its size first suggests and would make a valuable reference work for any one interested in infant development.

National Health Agencies: A Survey with Especial Reference to Voluntary Associations. By Harold M. Carvins. Including a detailed directory of major health organizations. Cloth. Price, \$3. Pp. 251. Washington, D. C.: Public Affairs Press, American Council on Public Affairs, 1945.

Here is a record of the various voluntary public health agencies in the United States with information concerning their histories, backgrounds and place in our social organization. The national society of medical origin in the United States with the longest continued existence is the American Psychiatric Association, organized in 1844; next is the American Medical Association in 1847. The three chapters on the basic characteristics, backgrounds and social awakening related to voluntary public health organizations are most interesting. The discussions are succinct and yet fully informative. The book constitutes one of the best references thus far available in the field it concerns.

Jurisprudence for Nurses: Legal Knowledge Bearing Upon Acts and Relationships Involved in the Practice of Nursing. By Carl Scheffel, Ph.B., M.D., LL.B., in collaboration with Eleanor McGarrath, R.N. Third edition. Cloth. Price, \$3. Pp. 264. New York: Lakeside Publishing Company, 1945.

This is the third edition of a book originally published in 1931. It contains seven chapters dealing with the legal status of nurses, the legal obligation of nurses, nurses and contracts, nurses and wills, nurses as witnesses, criminal responsibility of nurses and property rights in clinical charts, case histories, roentgenograms, certain other records and pathologic specimens. A brief analysis of the nursing laws of the United States and Canada is included in an appendix.

Organic Chemistry. By Louis F. Fieser and Mary Fieser. Cloth. Price, \$8. Pp. 1,091, with illustrations. Boston: D. C. Heath & Company, 1944.

This textbook of organic chemistry is one of the best such fundamental works of recent years and follows generally the traditional plan of organization. The book has special features in the addition of numerous optional chapters, written mostly by Mary Fieser, on applications of organic chemistry to technology and to the biologic and medical sciences, rendering the book particularly valuable to the physician. It thus affords the pre-medical student the chance to get a glimpse of the direct application of this phase of chemistry to his interests. A few of the supplementary topics are microbiologic processes, role of carbohydrate in biologic processes, metabolism of fats, proteins and amino acids and advances in chemotherapy. In view of the present day lack of good biologic chemistry textbooks, these sections are particularly valuable in presenting briefly current knowledge of certain phases of metabolism. The book is particularly well written and contains more than the usual number of structural formulas, structural equations and tables of constants of compounds. One criticism of the manuscript may be leveled at the incidental treatment of the heterocyclic compounds. However, extensive references at the end of each chapter and an adequate index complete an otherwise well rounded textbook.

Public Medical Care: Principles and Problems. By Franz Goldmann, M.D. Cloth. Price, \$2.75. Pp. 226. New York: Columbia University Press, 1945.

The author discusses the development of hospitals, medical centers and plans for the care of the indigent. He considers finally programs of planning for expansion of medical institutions and services, inclining actually toward a complete system of state medicine but being willing apparently to concede that physicians are people. He states that there are three ways to solve the problem of medical care: (1) centralization of both power and function, (2) decentralization of both power and function and (3) centralization of power, complete or limited, along with decentralization of function or certain types of function. The approach of Dr. Goldmann, although he is a physician, is distinctly that of the economist and social worker. There seems to be nothing in his point of view which would mark it particularly as that of the man trained in the American tradition of democracy.

Personnel Work in Schools of Nursing. By Frances Oralind Triggs, Ph.D. Cloth. Price, \$2.75. Pp. 237. Philadelphia & London: W. B. Saunders Company, 1945.

This has been prepared as a guide for the development of student personnel programs in schools of nursing education. Its primary purpose, therefore, is to instill in the prospective counselor, the teacher, the supervisor and other members of the administrative nursing staff a greater knowledge and understanding of the problems, techniques and methods involved in the guidance and counseling of students in training. The book is divided into four parts, including a brief introductory review of the structural, physiologic and psychologic bases of human behavior, learning and adjustment. The remaining sections are devoted to the counseling program itself, which the author has handled with expert knowledge. Part II describes the essential qualifications of counselors, individual techniques and many of the nursing problems that are commonly encountered in educational, personal and vocational counseling. In part III the reader becomes familiar with the various methods employed in the selection of students as well as the interpretation and evaluation of individual tests. By presenting a complete case record in part IV the author has successfully illustrated many of the principles and technical details involved in the counseling process. An extensive bibliography provides ready access to other valuable references in this field.

LeRoy Long: Teacher of Medicine. By Basil A. Hayes. Fabrikold. Price, \$1.50. Pp. 91, with 4 illustrations. Oklahoma City: The Author, 1943.

This work includes a series of articles previously published in the *Journal of the Oklahoma Historical Society*. It traces the life of a medical pioneer of our own times who fought for high standards of medical care and who contributed greatly to the advancement of medicine and medical education in Oklahoma.

The Basis of Clinical Neurology: The Anatomy and Physiology of the Nervous System in Their Application to Clinical Neurology. By Samuel Brock, M.D., Professor of Neurology, College of Medicine, New York University, New York. Second edition. Cloth. Price, \$5.50. Pp. 393, with 72 illustrations. Baltimore: Williams & Wilkins Company, 1945.

This has proved its value and established its position in American neurologic literature since it first appeared in 1937. This work correlates the facts of neuroanatomy and neurophysiology with the clinical manifestations of neurologic disease in a useful fashion. It bridges the gap between laboratory studies and the bedside for both student and practitioner. In the new edition the author has surveyed and analyzed the literature and has brought to his readers in a clear and concise fashion the recent advances in fundamental science. There are but few statements to which exception can be taken. The book can be recommended to all who wish to bring themselves up to date on important matters of neuroanatomy and neurophysiology and their relation to the behavior of the human nervous system in both health and disease.

The American Year Book: A Record of Events and Progress, Year 1944. Edited by William M. Schuyler with the cooperation of a supervisory board representing national learned societies. Cloth. Price, \$12. Pp. 1,082. New York: Thomas Nelson & Sons, 1945.

This book presents a survey of the year 1944 in twenty-seven major fields of activity, among them the medical sciences. The reviews of medicine, pathology and physiology are prepared by Dr. Max Trubek of New York, who tells of the advances with penicillin, the control of typhus, the insect repellents, thiouracil and blood fractions. The article on surgery is by Dr. Edwin J. Pulaski of New York. He discusses the sulfonamides, penicillin, proteins, thiouracil, frostbite and blood fractions. The article on public health is by W. W. Peter of New Haven, Conn. He discusses the health of the nation from many different points of view and seems to have reviewed adequately major fields of interest in public health in recent years.

François Magendie: Pioneer in Experimental Physiology and Scientific Medicine in XIX Century France. By J. M. D. Olmsted, Professor of Physiology, University of California, Berkeley, California. With a preface by John F. Fulton. Cloth. Price, \$5. Pp. 290, with 5 illustrations. New York: Schuman's, -1944.

This is a clearly written factual account of a great pioneer in the medical sciences of France a hundred years ago. The first part of the last century was a great period for medical science in that country, with such leaders as Lavoisier, Magendie and Magendie's pupil Claude Bernard. It is worth while for members of our profession to secure inspiration, guidance and courage from the great medical leaders of the past, men who frequently labored under great difficulties and yet carried the torch forward. Professor Olmsted has rendered medicine a distinct service in presenting this clear story of François Magendie.

The Autobiography of Science. Edited by Forest Ray Moulton and Justus J. Schifferes. Cloth. Price, \$4. Pp. 666. Garden City, N. Y.: Doubleday, Doran and Company, Inc., 1945.

For every physician this anthology will be an interesting and useful work. Here are quotations from most of the important scientific works known to mankind, with brief introductory biographic statements and with interpretative paragraphs that add to their value. The work begins with the story of creation from Genesis and carries us along through the Smith Papyrus and the works of Hippocrates to Sigmund Freud, William Osler, Walter Cannon and Harvey Cushing.

Taber's Dictionary of Gynecology and Obstetrics. By Clarence Wilbur Taber. With the collaboration of Mario A. Castallo, M.D., F.A.C.S., Assistant Professor of Obstetrics, Jefferson Medical College, Philadelphia. Cloth. Price, \$3.50. Various pagination, with illustrations. Philadelphia: F. A. Davis Company, 1944.

The authors in their foreword say that this is a specialized medical dictionary designed for all those interested in obstetrics and gynecology, the nurse, student, practitioner and specialist. In addition to the usual definitions, many subjects are treated in considerable detail with the aid of outlines and illustrations. Some data, such as an outline of infectious diseases in children, are not quite pertinent to the subject. Some common terms are absent. Ergot is defined, but ergonovine is missing. This small book may be a useful reference book, but it does not replace the standard medical dictionaries.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ENDOCRINES FOR HYPOGONADISM AND THE MALE CLIMACTERIC

To the Editor:—What is the danger, if any, of effecting testicular atrophy or germinal cell depression with the use of testosterone (testosterone propionate and methyl testosterone) or pituitary gonadotropin in such conditions as hypogonadism, cryptorchism and the male climacteric? Are such changes, if any, irreversible? Are there any other possible contraindications? Of the two substances testosterone and gonadotropin, which is preferable in the treatment of the conditions mentioned?

M.D., California.

ANSWER.—In a man with a normal spermatozoa count the administration of testosterone propionate in a dose of 25 mg. a day may produce azoospermia. Recovery takes place within two to three weeks after discontinuing treatment, and there are apparently no ill effects. It is not known definitely whether methyl testosterone will produce the same effect or not. Azoospermia also has been produced in a few instances by the administration of pituitary gonadotropin. The best general rule to follow in the treatment of hypogonadism is to use stimulation therapy first and to resort to substitution therapy with male sex hormone if it fails. Commercial preparations of pituitary gonadotropin are of little value in men. They sometimes produce menstruation in women with secondary amenorrhea. Chorionic gonadotropin is effective in men. It stimulates the interstitial cells of the testis to produce male sex hormone but has little or no influence on spermatogenesis. It is primarily of value in the treatment of cryptorchism and hypogonadism secondary to hypopituitarism. It is also of value in the Froehlich syndrome. Testosterone propionate is more effective in the male climacteric.

SCLERODERMA AND ULCERATION OF LEGS

To the Editor:—For about two years I have been treating a woman aged 58 for scleroderma with deep ulcerations of both legs. I have used thyroid and mild ointments. The ulcers have healed except for two spots and superficial skin lesions. Would it be advisable to try penicillin?

Theodore Bilski, M.D., Westfield, Mass.

ANSWER.—Ulcers seldom form at sclerodermatous sites, except at bony prominences or where there is extrusion of associated calcium deposits. Scleroderma of the legs usually develops a hidebound condition, which over the legs is severe. If the lesions really were sclerodermatous, it is probable that they were of the morphea variety. This is so because the latter finally develops a thin atrophy and in this patient the remaining lesions are superficial. Several conditions on the legs may stimulate scleroderma or localize scleroderma. Necrobiosis lipoidica diabetorum may or may not ulcerate. A dermatitis on the legs due to insufficiency in the circulation may sometimes be quite indurated and thickened to simulate scleroderma. Such a stasis dermatitis could develop ulcers. It is possible that this is the case here. If this is so, the poor blood circulation would need alleviation or correction. Antibiotics such as thyrothricin, together with other appropriate measures, have been found useful for these ulcers. Penicillin also, used locally, probably would be helpful.

GEOGRAPHY OF UPPER RESPIRATORY INFECTIONS

To the Editor:—Will you kindly give me the names of states which show the lowest incidence of upper respiratory infections and sinusitis, also the states which show the highest rates for these two diseases?

R. Thornell Mauer, M.D., Omaha.

ANSWER.—Since the diseases mentioned are not reportable and seldom appear as causes of death, there are no actual statistics on their prevalence in different regions. They seem related more to weather instability (storminess) rather than to any other environmental factor and hence are at a minimum in the Southwest (New Mexico, Arizona and southern California, except along the immediate coastal fringe of 20 miles or so). They are most prevalent in the Missouri, upper Mississippi and Ohio river basins and eastward to the Atlantic coast. Urban atmospheres polluted with domestic flue and industrial wastes greatly intensify the respiratory disease problem.

CHEMISTRY OF DIGESTION

To the Editor:—How many carbon atoms do the breakdown products of carbohydrates, fats and proteins have at the time they are absorbed through the walls of the digestive system? Naturally the compounds at that stage have various molecular sizes. What is the maximum size which can pass into the body in ordinary procedure? M.D., New York.

ANSWER.—Carbohydrates are absorbed from the digestive tract mainly as hexoses, 6 carbon chains; fats are thought to pass into the lymph and then into the blood as resynthesized fats with the intermediate hydrolysis to glycerol and fatty acids, the latter mainly as 16 and 18 carbon chains. Normally the proteins are hydrolyzed in the digestive tract in the main to the amino acid stage and these absorbed into the blood stream. Such amino acids vary in size from 2 carbon to 11 carbon compounds. To some extent peptides, peptones or proteoses may be absorbed, but these forms are not now considered important or high in amounts in the normal absorption of proteins from the digestive tract.

MALARIA IN PREGNANCY

To the Editor:—A woman who is about six months pregnant has malaria. Would it be safe to give quinine sulfate? If so, what dosage? What drugs could be safe for the treatment of malaria in this case?

M.D., New Mexico.

ANSWER.—Although there is considerable doubt whether the therapeutic dose of quinine is sufficient to cause a premature delivery in a six months pregnant subject, a safer drug would be atabrine. The dose of the drug is 0.2 Gm. every six hours for the first day and then 0.1 Gm. three times a day for the five ensuing days.

PIGMENTATION OF SKIN DUE TO SYNTHETIC RUBBER

To the Editor:—A housewife developed a severe dermatitis of her hands following the use of gloves made of synthetic rubber for the purpose of dishwashing. The dermatitis continued despite treatment until the use of the gloves was discontinued. The dermatitis then gradually disappeared but left a pigmentation of the skin around the wrists where the open end of the gloves came in contact with the skin. This pigmentation, apparently in the lowest layer of the skin, is disfiguring and annoying to the patient, as it looks like dirt on the wrists. It has persisted for three months. How can this pigmentation be removed?

W. E. Lowthian, M.D., Baltimore.

ANSWER.—The treatment of hyperpigmentation is notoriously unsuccessful. In time it should disappear. The drug most commonly used for pigment removal is mercury bichloride. The following formula recommended by Von Harlingen may prove of value: mercury bichloride 0.4 Gm., zinc sulfate 2 Gm., lead acetate 2 Gm. and distilled water to make 120 cc.; this should be applied as a lotion morning and evening.

SÄNGER MODIFICATION OF CESAREAN SECTION

To the Editor:—Please describe the Säger modification of cesarean section. M.D., Arizona.

ANSWER.—Säger introduced his modification of the cesarean operation in 1882. De Lee states that the following were the essentials of the operation:

"Median abdominal incision; median uterine incision, with or without eventration of the uterus; use of rubber ligature around cervix to stop hemorrhage; resection of a strip of uterine muscle under the peritoneum; eight or ten interrupted silver wire sero-muscular sutures, avoiding the decidua; twenty to twenty-five interrupted fine silk seroserous (Lembert) sutures; extreme antiseptics."

These safeguards lessened the mortality rate of the operation in those days, but obviously they are not applicable at the present time.

WIRING IN FRACTURES OF THE JAW

To the Editor:—Referring to the answer to the query on "Wiring in Fractures of Jaw" on page 774 of *The Journal*, July 7, 1945, "T. L. Gilmer" should read instead "T. L. Gilmer." Dr. Gilmer began the practice of dentistry in Quincy, Ill., later moving to Chicago, and for years he was connected with the Northwestern University Dental School, where he became famed in the field of oral surgery. The component of the Illinois State Dental Society in which Quincy is located was named "The T. L. Gilmer Component" in his honor. Hugh M. Tarpley, D.D.S., Quincy, Ill.

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AMEBIC HEPATITIS

REPORT OF THIRTY-THREE CASES

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AND

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NEW ORLEANS

The term amebic hepatitis has been used by some¹ as synonymous with hepatic amebiasis. Most commonly, however, this term is used to indicate the earlier phase of amebic hepatic disease before frank abscess can be diagnosed. Although at times the patient may not complain until frank abscess is present or even until rupture is imminent,² there is much evidence in the literature³ to indicate the importance as a clinical entity of these earlier phases of amebic hepatic disease. Rogers⁴ over thirty years ago described a "presuppurative" stage, by which he meant to differentiate the stage of abscess from simple amebic hepatitis. Actually it is impossible clinically to be certain that small single or multiple abscesses are not present at this time, and diagnosis and treatment at this stage are extremely important. The frequent lack of clarity in discussion of these pictures and the tendency to group amebic hepatitis and amebic hepatic abscess in clinical analyses and statistics have prompted a review of the last 33 cases of amebic hepatitis seen at the New Orleans Charity Hospital and the U. S. Marine Hospital at New Orleans in order to note any differences in the clinical manifestations of these groups and the factors of importance in early diagnosis and, consequently, in early treatment. Certain aspects of some of the cases in the present series have been discussed elsewhere.⁴

CLINICAL PICTURE

All 33 of the patients were adults and 29, or 88 per cent, were men. These findings were to be expected from previous reports. The disease is essentially one of adults, and, in an analysis of hepatic abscess from the records of the Charity Hospital, Ochsner and DeBakey⁵ found 157, or 86.7 per cent, of 181 instances in the male. The same authors, in a review of the literature, found that 95 per cent of 1,789 cases occurred in men.

In the present group the clinical picture showed a number of rather constant characterizing features,

although the complaints on admission at times led to a search for disease in areas outside the liver. Pain in the region of the liver was a universal complaint. It varied from severe and sharp to dull and aching. At times it was constant, at others intermittent. The patient usually complained of pain in the region of the right costal margin, most frequently in the anterior or axillary region but at times posteriorly as well. Fever was present in all but 1. In the more acute pictures it reached 103 to 104 F., was intermittent in type and in 13, or 40 per cent, of the patients was accompanied by chills. Clinical jaundice was present in only 5, or 15.1 per cent, of the patients. Sallowiness of the skin was frequent. Jaundice was therefore not usually present, but its occurrence was sufficiently frequent to bring amebic hepatitis under consideration. Its frequency in amebic hepatitis is variously reported as ranging from 3 to 27 per cent.⁶ Other complaints less regularly present included nausea and vomiting, weakness and loss of weight. In only 9, or 27.3 per cent, of the patients was diarrhea present at the onset or during the course of the hepatic picture. Seven others gave a history of diarrhea, bringing its incidence up to 16 of the 33, or 48.5 per cent. The history of diarrhea may antedate the picture for years but, as shown by the figures just given, was more recent in the majority of the cases.

The most important physical findings were hepatomegaly and tenderness in the region of the liver. Enlargement of the liver was found in 29, or 88 per cent, and tenderness with regularity in 100 per cent. Occasionally tenderness was so severe that the presence or absence of a palpable liver could not be established. The spleen was palpable in 4 patients, 2 of whom gave a history of previous malaria. This finding, therefore, was unusual, but it did not exclude the diagnosis.

The total leukocyte count was elevated in 29, or 88 per cent, averaging 13,000. The incidence of positive stools, roentgenologic findings and data on the complement fixation test are given in the accompanying table and are discussed further on along with the several scattered data on liver function tests.

None of the patients showed the low grade symptomatic picture described by Hurst⁶ and Castellani.⁷ Many had the positive findings described by these authors but had other important findings in addition. The former author described a picture of general unfitness and ease of fatigue with poor appetite, a pale or sallow color, and constant aching and tenderness of the exposed surface of the liver. The levulose test showed evidences of hepatic insufficiency and but rarely were amebic cysts found in the stools. The latter author described a picture interpreted as low grade hepatitis

From the Department of Preventive Medicine, Tulane University of Louisiana School of Medicine, the Charity Hospital of Louisiana at New Orleans and the U. S. Marine Hospital at New Orleans.

1. Munk, J.: X-Ray Appearances in Amebic Hepatitis, *Brit. J. Radiol.* 17: 48, 1944.

2. Walters, W.; Watkins, C. H.; Butt, H. R., and Marshall, J. M.: Amebic Abscess of the Liver Unsuspected Until Perforation, *J. A. M. A.* 125: 963 (Aug. 5) 1944.

3. Rogers, L.: Amebic Liver Abscess, *Lancet* 1: 463 and 677, 1922. Ochsner and DeBakey.⁵

4. Sodeман, W. A., and Lewis, B. O.: Amebic Hepatitis, *Am. J. Trop. Med.* 25: 35 (Jan.) 1945.

5. Ochsner, A., and DeBakey, M.: Amebic Hepatitis and Hepatic Abscess, *Surgery* 13: 460 and 612, 1943.

6. Hurst, A. F., in Price, F. W.: *A Textbook of the Practice of Medicine*, ed. 5, New York, Oxford University Press, 1937, p. 713.

7. Castellani, A.: Three Clinical Signs Useful in the Diagnosis of Chronic Amebic Colitis with No Dysenteric Symptoms, *Rev. Gastroenterol.* 7: 1, 1940.

with evidences of enlargement of the liver to percussion but with the absence of a palpable liver, fever and leukocytosis. In the picture described by Castellani, criteria are not well established, and the proof of its importance has not yet been established by tissue studies. All of our group showed findings without doubt diagnostic of active hepatic disease. The type of onset and the symptoms in our group did vary with the acuteness or chronicity of the process. In 25, or 75.8 per cent, of the patients there was a distinct sudden onset from which the picture could be easily dated. This figure is much higher than some of those given for hepatic amebiasis in other reports,⁵ and in our group of 58 cases of amebic hepatic abscess, including those with pulmonary pictures, only 55 per cent had sudden onset. It is likely, of course, that the more acute pictures would lead to earlier diagnoses, before abscess could be established, and thereby increase the frequency of instances with acute onset in such a group of patients. On occasion the patient may not complain, as already stated, until frank abscess is present or even until rupture is imminent.² It is possible that chronic hepatitis of a very low grade, as just mentioned and as described by Hurst and Castellani, could antedate such instances, but our experience does not add weight to such an assumption. In our 8 patients without dramatic onset,

*Observations in Cases of Amebic Hepatitis and
of Amebic Hepatic Abscess*

	Amebic Hepatitis (33 Cases)	Amebic Hepatic Abscess (58 Cases)
1. A history of diarrhea or dysentery, or its presence with the hepatic picture.....	16 (48.5%)	19 (32.7%)
2. The presence of E. histolytica in the stools	18 (54.5%)	10 (29.4%)
3. Roentgenologic signs	15 (45.4%)	47 (81.0%)
4. Chocolate sauce pus.....	0 (0.0%)	55 (94.8%)
5. Positive complement fixation test.....	1 (50.0%)	2 (100.0%)

that is the chronic group, the clinical findings were essentially of the same type as in the more acute pictures, but of less intensity and less sudden appearance and progress.

DIAGNOSTIC ASPECTS

As with frank abscess, the presenting complaints at times drew attention to areas other than the liver. In abscess with rupture to or through the diaphragm the process is at times mistaken for primary pulmonary disease. In 12, or 20 per cent, of our 58 cases of hepatic abscess, previously reported,⁴ presenting complaints and clinical findings concentrated interest in the right lower pulmonary area with pleural pain, pleural effusion and evidence of pneumonitis as outstanding pictures. All showed, in addition to the pulmonary findings, evidences of hepatic involvement. In the remaining 46 patients the complaints on admission pointed definitely to the abdomen and specifically to the liver. In the present group obviously without spread of the disease to the pulmonary area, the complaints occasionally led to the consideration of a pulmonary diagnosis. This was true in 3 instances (9.1 per cent), and in all 3 the suspicion of pulmonary disease was based entirely on the type of pain. One patient had pain referred to the right shoulder accentuated by breathing; the other 2 knifelike pain along the right costal margin near the midaxillary line, which again led to a consideration of pleurisy as a diagnosis. All in all, in amebic hepatitis pulmonary pictures do not attain the importance they do in certain instances of abscess, and

in our group the consideration of pulmonary pictures rested entirely on first impressions of the possible source of pain. Under such circumstances suggestive evidence of pulmonary involvement may be found in the chest roentgenogram, for, with involvement of the diaphragm immobilization of the right base may at times cause some increased densities in the lower right pulmonary area which have been mistakenly interpreted as pneumonitis.

The clinical pictures were similar to those seen in some days or weeks in developing hepatic abscess. Indeed it is the same process. In the group of patients with amebic hepatitis, as in those diagnosed as amebic hepatic abscess, a number of admission diagnoses other than amebic disease were made. These included cirrhosis and cancer of the liver, acute and chronic cholecystitis, peptic ulcer, infectious hepatitis, pyogenic liver abscess, carcinoma of the colon, pyelonephritis and pleuritis, the diagnosis varying with the onset, severity and type of picture. In 1 instance there was at the onset a lack of localizing signs in the liver area, so that the differential diagnosis involved the consideration of febrile disease without localizing signs; for example, brucellosis and malaria. Those conditions which at times fall into a group called "fever of undetermined origin" are therefore considered in differential diagnosis. This list of diagnoses does not represent all the conditions with which amebic hepatitis may be confused. It does represent those which came under consideration in our patients before the true diagnosis was made.

The most important fact which our series shows is the need for consideration in diagnosis of the possibility of the occurrence of hepatic amebiasis. In the hospital with which we are associated some of the conditions that have been listed are many times more common than hepatic amebiasis. The same is true in many, if not all, communities in this country, and the possibility of the occurrence of amebic hepatic disease does not always come to mind. In some tropical areas in which hepatic amebiasis is more common in relationship to these other pictures, the possibility of its presence is uppermost in the mind of the examiner. This is not true, in general, in our community, and the condition does not always come to mind. This our records show very clearly. Awareness of the possible occurrence of hepatic amebiasis was therefore the most important single factor in the early establishment of the diagnosis. Without it, diagnoses were either late or accidental. Most important is the fact that geography cannot be used to rule out the possibility, for amebiasis is found wherever it is sought.

As already stated, the clinical findings described as making up the symptom complex of amebic hepatitis included leukocytosis in 88 per cent of our patients. This is an extremely important finding, although the white blood count may vary into the range of normal from time to time in the same patient. The average count in our patients was 13,000, the highest being 26,000 and the lowest 6,200. In general the counts were higher in the more acute pictures. With abscess Ochsner and DeBakey² found an average of 16,450, and in pyogenic abscess of the liver 26,924. Eosinophilia was not in evidence. The percentage of neutrophils averaged 74. While the absence of leukocytosis is a point against the possible diagnosis of amebic hepatitis, repetition of the white blood count is indicated because of its variability, and search for collateral diagnostic data for amebiasis is still indicated because of the occurrence of normal counts in 12 per cent or more of the cases.

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The occurrence of jaundice in 15 per cent of our patients produced a clinical entity which simulated certain other types of hepatitis generally considered in the differential diagnosis of so-called catarrhal jaundice and acute infectious hepatitis. Here the presence of leukocytosis and the collateral diagnostic data for amebiasis which we have already mentioned are extremely important. Several of the other types of specific hepatitis may also give leukocytosis. Within a period of three days one of us recently saw 3 patients with fever, jaundice and enlargement and tenderness of the liver and elevated white blood counts. Each of these patients showed one of the specific types of hepatitis seen in our community, amebic hepatitis, Weil's disease and infectious mononucleosis. Palpability or lack of palpability of the spleen was not helpful in differential diagnosis. With amebic hepatitis and jaundice our patients have shown icterus indexes as high as 70, positive urobilinogen tests, mild reductions in serum proteins in 2 patients, indirect positive van den Bergh tests in 3 and impaired hippuric acid secretion and galactose tolerance tests in 1 patient each. The cephalin flocculation test was positive in the 1 case in which it was done. Bile was present in the stools in all 5 patients with jaundice. Obviously our data on liver function tests in these patients are inadequate and fragmentary. More adequate investigations from this standpoint are necessary to make these tests of value in diagnosis.

Demonstration of the etiologic agent in any disease places therapy on solid ground. Amebiasis is no exception and the study of the stools in suspected colonic involvement, especially with a check of at least three stools followed by a purge specimen, is said to have an efficiency in diagnosis of about 90 per cent.⁸ However, in hepatic involvement, diagnosis and treatment are almost invariably carried out without demonstration of *Endameba histolytica* in the liver or its discharges. The organism cannot be demonstrated in the involved structures until pus is obtained, and even then it is found with difficulty. The gross appearance of the pus is so characteristic that, for practical purposes, it is diagnostic, although occasionally pus of this appearance is not amebic, and amebic pus occasionally is light creamy in appearance. In our group of 58 cases previously reported, the diagnosis was finally settled in this way in 55. However, pus was demonstrated early in the observation of the patient in only 27 of the 55 instances, which indicates the delay in diagnosis and treatment entailed by temporizing for this final criterion. If the diagnosis is suspected from the clinical pictures already described, certain data may be actively sought before pus is demonstrated to arouse the clinical suspicion of the disease to a level sufficiently high to warrant treatment. These findings and the frequency of their occurrence in the present group of patients, as well as in the group previously reported with abscess, are shown in the table. It will be seen that not one of the collateral items is in itself diagnostic of hepatic amebiasis, but since the diagnosis of this disease approaches desirable criteria, only when characteristic pus is obtained, and since this is late in the disease, we must depend on findings less diagnostic than the ideal or sit back and wait until the disease has progressed to its advanced stages. In 50 of the cases diagnosed as abscess, the onset of the picture was established with

some certainty and varied from two weeks to five months, with an average of six and a half weeks from onset until the diagnosis was satisfactorily established. This time interval indicates that a search for the collateral data given in the table may lead to a presumptive diagnosis of amebic hepatic disease in the absence of the demonstration of other causes for the clinical picture and will warrant active therapy with emetine before pus is obtained.

The differentiation of patients into two groups, one with simple amebic hepatitis and the other with amebic hepatic abscess, is a purely clinical division and from the standpoint of treatment is extremely important. By no means short of autopsy can one clearly establish a diagnosis of hepatitis without abscess. Although Rogers described a presuppurative stage, it is impossible to be certain that small single or multiple abscesses are not present without location or size which cause bulging. Amebic hepatitis is the earlier stage of the disease and, even when some liquefaction has taken place in the hepatic lesions, closed drainage is not essential to cure. Emetine alone⁹ is known to be successful at times, even when pus is present. Even large abscesses may at times disappear with emetine therapy alone, but in most such cases evacuation of pus is necessary and should not be delayed if danger of rupture is imminent. Two to four days of emetine therapy should be carried out before aspiration when possible, and will, in effect, eliminate the necessity for aspiration at times, as well as reduce the complications attendant on aspiration if it is found necessary. The presence of secondary bacterial infection in abscess cavities has demanded resort to open rather than closed drainage, a procedure which is accompanied by a sharp increase in mortality. Recently the use of sulfonamides¹⁰ and penicillin¹¹ has been shown to permit closed drainage when organisms sensitive to these agents have been the contaminants.

Berne's remarks¹² on the process going on in the liver are important. He emphasized that it represents a special type of liver necrosis, as is a gumma, and that emetine is approximately as specific as is neoarsphenamine. He further emphasized that, if it was looked on as being similar to a broken down gumma with aseptic evacuation of its contents often required to eliminate a foreign body factor, the proper orientation for treatment would be established. Dangers of rupture and spread of the process with additional mortality from these complications demand closed drainage, preferably preceded by emetine when pus is located.

Since the diagnosis is a matter of estimation of the stage of the process, one should not expect a remarkable difference between the two in factors 1, 2 and 5 in the table. The differences rest most probably on at least two bases, first variations in the diligence of examiners in the various hospital services and secondly on the small size of the groups, which renders comparative figures difficult to interpret. Colonic infection probably always precedes the hepatic lesion but in many instances is not clinically active. Right sided colonic disease particularly may give little in the way of symptoms or signs. In only 32 per cent of those diagnosed as having abscess and in 48.5 per cent of those diag-

9. Hodson, V. S.: The Treatment of Hepatic Abscess with Emetine, *J. Trop. Med.* 24:108, 1921. Greig, E. D. W.: Case of Amebic Abscess of the Liver Without Antecedent Dysentery, *ibid.* 43:119, 1940; Observations on a Case of Amebic Hepatitis, *ibid.* 43:161, 1940. Ochsner and DeBakey,³ Sodeman and Lewis.⁴

10. Alpert, A. C., and Ghahroughi, P.: Conservative Treatment of Liver Abscess, *Lancet* 2:1062, 1939.

11. Noth, P. H., and Hirschfeld, J. W.: Amebic Abscess of the Liver with Secondary Infection, *J. A. M. A.* 124:643 (March 4) 1944.

12. Berne, C. I.: Diagnosis and Treatment of Amebic Liver Abscess, 1942.

8. Savitz, W. G., and Hammerstrom, R. J.: The Statistical Significance of a Negative Stool Examination in the Diagnosis of Amebiasis, *Am. J. Hyg.* 38:1, 1943.

nosed as having amebic hepatitis, a history of diarrhea was obtained. These figures vary considerably in reported groups of hepatic amebiasis in the literature. In some groups the history of diarrhea has occurred in as high as 90 per cent of the patients.¹³ This finding became more important clinically when it was recent and the characteristics were clear in the patient's mind. Certainly with a story having the characteristics of amebic dysentery in the presence of the hepatic picture as described when the considerations in differential diagnosis already given are exhausted, a therapeutic trial with emetine is indicated. It must be noted that absence of diarrhea is sufficiently frequent that the lack of a positive history is not helpful in exclusion of the diagnosis. Again, the establishment of the diarrhea as a manifestation of amebiasis or the finding of positive stools without a diarrhea was extremely important, for it established in the patient the presence of the etiologic agent. *E. histolytica* has been reported as present in from 4 to 70 per cent of patients with amebic hepatic disease.¹⁴ In our group examinations were not always adequate, so that the figures should be higher than those stated. In New Orleans, where over 10 per cent of the clinic population has cysts of *E. histolytica* in the stools,¹⁵ obviously in approximately that percentage of patients with any disease—whether cirrhosis of the liver, peptic ulcer or any other disturbance—stools would be likely to be positive. This finding, therefore, is not pathognomonic of hepatic amebiasis, but under any circumstances it establishes the presence of the causative agent in the body of the patient, and in the presence of the hepatic pictures we have described, without any other adequate explanation for that picture, a course of emetine is indicated.

In our hands this has consisted of six to ten daily injections, preferably intramuscularly, of 1 grain (0.06 Gm.) of emetine hydrochloride followed by a full course of iodoquin (three tablets of 3.2 grains [0.2 Gm.] each three times daily for five days) whether or not *E. histolytica* has been demonstrated in the stools, for the colon is the assumed source. Prolonged use of emetine may lead to cardiac damage. Arrhythmia and congestive heart failure are the chief findings, and diarrhea, nausea, vomiting, prostration, muscular pains and weakness may develop. In our patients restriction of the dose to that just stated has resulted in untoward results in only 1 of 91 patients.

One cannot overemphasize in amebic hepatitis the importance of the roentgenographic examination, especially fluoroscopic study for impaired or paradoxical motion as well as elevation of the diaphragm. Recently emphasis has been placed on lesser degrees of restricted movement of the diaphragm, which may be the only sign of liver involvement.¹ Munk has emphasized Müller's test (positive with upward movement of the diaphragm on inspiration against a closed glottis) and Hitzenger's test (the same action with "sniffing"). Both of these tests may be positive in phrenic paralysis, eventration of the diaphragm or local damage to the diaphragmatic muscle. Pleurisy from any cause may impair diaphragmatic movement, and elevation of the diaphragm occurs from all types of increased intra-abdominal pressure as well as from infectious hepatitis and other types of hepatomegaly. Some types of pulmonary disease, bronchostenosis, for example, may give

paradoxical movement of the diaphragm. Also in amebic hepatitis or amebic hepatic abscess the diaphragm may show no change if the upper portion of the liver is not remarkably involved.

In the present group roentgenologic signs were absent in 18 of the 33 patients, or 54.6 per cent. With the development of abscess roentgenologic findings were twice as frequent, with evidence of bulging or of extension of the disease in 56.9 per cent of the patients and positive roentgenologic findings in 81 per cent. Evidences of bulging or extension of the disease were absent in the patients with hepatitis, where elevation and impaired movement of the diaphragm were the only findings. The latter finding alone occurred in 18, or 31 per cent, of our patients with abscess, a figure more in keeping with the 45.4 per cent in hepatitis. Thus, roentgenologic findings become more positive in the more advanced pictures, finally acting as an important guide for the aspiration of pus. We need not mention other evidences of abscess formation, for we are not concerned with these advanced pictures here. They have been ably discussed by Ochsner and DeBakey.⁵

In the patients diagnosed as having amebic hepatitis, pus was, of course, not demonstrated. Chocolate-sauce appearance is the closest approach to a final diagnostic criterion, and its absence makes the other collateral data extremely important in the establishment of a diagnosis. The occurrence in combination in the same patient of several of these findings makes the presumptive diagnosis one of high degree. Twelve of the patients showed the findings 1 with 2, 3 or both in the table. Seven showed 1 or 2 without 3. In only 2 was 5, the complement fixation test of Craig, done. One was positive, the other anticomplementary. This is the most glaring inadequacy in our data. Certainly awareness of the possible occurrence of amebic hepatitis from the clinical picture together with the positive complement fixation test would give the earliest possible combination for a presumptive diagnosis which would lead to early therapy. Such an approach would reduce the number of patients reaching the stage in which pus is demonstrable. In our abscess group the mortality rate was 5.2 per cent; in the group with hepatitis, 0 per cent. Hence the need for further development and more widespread use of the complement fixation test is evident. There are certain technical problems at present which interfere with the widespread use of, and the reliability of, this test.¹⁶ At present we must send material away for the complement fixation test, and the problem in diagnosis has usually been settled by the time the results are obtained. Collateral diagnostic data were helpful in 24 of the 33 patients. In 9 the diagnosis was unsupported by collateral findings. Here the complement fixation test would have been particularly helpful.

Many times then, as we have stated previously,⁴ the clinician standing at the bedside of the patient should and must make a diagnosis in the presence of the clinical picture but in the absence of absolute data, despite the fact that he is extremely anxious for such information and may have sought it diligently. If he elects to withhold specific treatment because of the inadequacy of diagnostic findings, the picture will either progress to resolution as a natural course of events or progress until definite evidence, either by bulging or by rupture.

13. Simonds, J. P.: Complications of Amebiasis, *Quart. Bull., Northwestern Univ. M. School* 17: 23, 1943.
14. Ochsner and DeBakey.⁵ Berne.¹²
15. Faust, E. C.: The Prevalence of Amebiasis in the Western Hemisphere, *Am. J. Trop. Med.* 22: 93, 1942.

16. Rees, C. W.; Bozicevich, J.; Reardon, L. V., and Jones, F.: A Preliminary Note on the Complement Fixation Test for Amebiasis with Antigen Prepared from *Entamoeba histolytica* Grown with a Strain of Bacteria, *Am. J. Trop. Med.* 22: 581, 1942.

indicates the presence of hepatic abscess. His alternative is to elect to treat the patient with emetine because of the high clinical suspicion of the disease and to determine through therapeutic results the presence of amebic hepatitis or, with high probability, the absence of this disease if therapy is not effective. In our opinion the latter course is the more desirable for, as we have said, in our groups the comparative mortality has been 5.2 and 0 per cent respectively. This situation is by no means peculiar to hepatic amebiasis. In pulmonary tuberculosis the diagnosis rests on the demonstration of the tubercle bacillus in the sputum or in the tissues. The clinician's greatest desire, however, is to diagnose and treat the disease sufficiently early so that it is impossible to demonstrate clinically the presence of the tubercle bacillus. This desire should also apply to amebic hepatic disease. In any disease in which results in therapy are based primarily on early diagnosis, the absolute criteria for diagnosis are likely to be absent. Errors in diagnosis are likely to occur, but if one waits until criteria are absolutely fulfilled great hazard is added to the life of the patient and potential benefits from treatment are greatly reduced. No better examples of these principles can be found than in the early treatment of tuberculosis, carcinoma and amebic hepatic disease.

The history and physical examination uncovering the hepatic clinical picture already described do not warrant a therapeutic test until other possibilities in diagnosis are considered and evidence speaks against them, while the awareness of the possible occurrence of amebic infection is leading to efforts to establish the presence of colonic amebiasis, roentgenologic findings in the liver area, a positive complement fixation test or, finally, pus, if a desirable area for tap is found. The promiscuous use of emetine, without the aforementioned attempts, is to be discouraged.

If treatment with emetine is rewarded by cure, two possibilities exist. Either the therapy and cure were coincidental, or there was a cause and effect relationship. The former is possible if the diagnosis has been in error. The latter is also possible with errors in diagnosis. Emetine is credited with striking therapeutic effects in other diseases involving the liver,

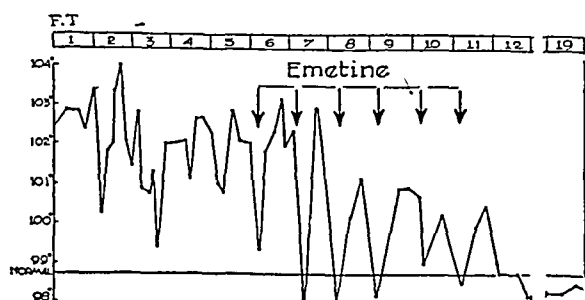


Chart 1.—Temperature of a patient in the present series, showing characteristic response to emetine therapy.

including schistosomiasis, fascioliasis and paragonimiasis.¹⁷ These possibilities are brought out in the temperature charts. Chart 1 gives the temperature of a patient in the present group who showed the clinical evidence we have described in the presence of positive roentgenologic findings and *E. histolytica* cysts in the stools. The effect of emetine therapy, as indicated in the chart, was the clearing of the entire picture

and the return of the temperature to normal. A period of one week is omitted from the chart, as indicated, in order to conserve space. Follow-up on this patient indicated that there was no return of the picture over a period of eighteen months. Chart 2 is that of a patient who had a comparable picture with tenderness and enlargement of the liver but without positive roentgenologic findings and without colonic amebiasis and

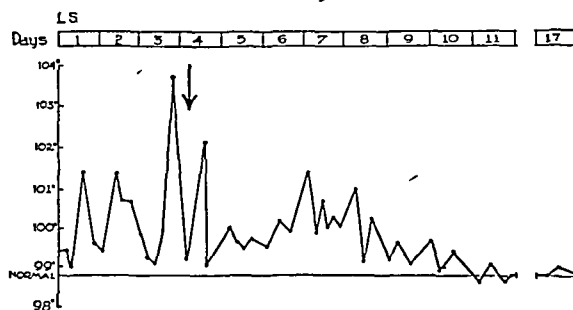


Chart 2.—Temperature of a patient not in the present series but with a similar clinical picture and no confirmatory collateral findings. The arrow indicates the time at which emetine might have been given and cure assumed from the response.

in whom the diagnosis was therefore in doubt. The arrow indicates the time at which emetine probably would have been given if the diagnosis had been strongly suspected from the collateral findings. However, the patient was not treated and the resolution of the fever, as shown in the chart, was spontaneous. The clinical picture also cleared and over a period of fifteen months repeated examinations of the stools for *E. histolytica* were negative and there was no recurrence of the symptoms or signs which prompted the admission to the hospital. Because of inadequate criteria for diagnosis, an occasional self-limited disease of the liver may be treated as amebiasis. Brookfield¹⁷ has recently reported such a case with spontaneous recovery.

While spontaneous cure or a remission in hepatic amebiasis is possible, the added risk attending the progress of the picture to a definite stage of abscess is so great that no one should permit it merely to satisfy his diagnostic curiosity. The introduction of closed drainage with emetine reduced the mortality from amebic hepatic abscess from figures over 50 per cent to 5 to 14 per cent.⁵ Awareness of the possibility of the occurrence of this disease, when the clinical findings occur, plus early treatment with adequate doses of emetine alone should make this figure approach zero.

CONCLUSIONS

1. The most important factor in the early recognition of amebic hepatitis is the awareness of the possible occurrence of the disease.

2. The presence of jaundice in about 15 per cent of the patients with amebic hepatitis in this series indicates the necessity for consideration of amebiasis as a cause of hepatitis with jaundice along with Weil's disease, infectious mononucleosis and other specific types of hepatitis when this picture presents itself. Evidences of impaired liver function by various liver function tests may be present. Our data on these points are fragmentary, and more investigations of this type on such patients are indicated.

3. Early diagnosis of hepatic amebiasis was shown in our group of patients to rest on collateral diagnostic findings, especially the presence of intestinal amebiasis, roentgenologic signs and the complement fixation test. More widespread use of the latter test is indicated.

17. Brookfield, R. W.: Acute Hepatitis Without Jaundice in West Africa, *Tr. Roy. Soc. Trop. Med. & Hyg.* 38: 25, 1944.

4. Early diagnosis, before the stage in which pus could be demonstrated, in our group, led to effective treatment with emetine alone. Dangerous procedures and the stage of the disease in which prognosis is at its worst were thereby avoided, with pronounced reduction in the mortality rate.

5. Diagnoses based on the criterion of characteristic pus will always be late, and our chances of an early preventive and therapeutic approach will be small.

6. Diligence and care in the demonstration of evidences of amebiasis in patients with such clinical pictures, through stool and roentgenologic examinations, and the complement fixation test, together with clinical acumen in ruling out other causes of the clinical picture, should reduce both errors in diagnosis and promiscuous use of emetine to a minimum, and, despite occasional errors in diagnosis, will place the treatment of hepatic amebiasis on the desirable plane on which the treatment of early carcinoma and early pulmonary tuberculosis now rests.

CRITERIA IN THE MANAGEMENT OF CHRONIC ILEITIS

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Before regional ileitis was established as a disease entity by Crohn and his co-workers¹ in 1932, this condition was thought to be a form of tuberculous enteritis. In many instances the existence of a small intestinal lesion was not even recognized, owing to a well known lag in the development of both clinical and roentgenologic diagnosis of disease of the small intestine.

DIAGNOSIS

Our first diagnoses of regional ileitis were made in flagrant cases of this condition with extensive and chronic lesions. As we have learned more concerning the clinical course and the corresponding pathologic changes that occur in the wall of the small bowel, the diagnosis has been made in the earlier stages and in instances of less extensive disease.

In any attempt to set up minimal criteria for the diagnosis of regional ileitis, the acute forms must be considered separately from the chronic stage.

The onset of ileitis may be gradual and insidious, with grumbling right lower quadrant symptoms and mild diarrhea, which in a few weeks may become severe enough to lead to either roentgenologic study or a laparotomy. There is also an acute onset characterized by abdominal pain localizing in the right lower quadrant with vomiting and diarrhea. Fever, leukocytosis, tenderness and muscle spasm may complete a clinical picture that is indistinguishable from acute appendicitis, with a result that many diagnoses of acute ileitis are made at the operating table.

Acute Ileitis.—In the present study of 107 cases of ileitis, 11 patients had the disease in the early acute stage. This was proved in every case by laparotomy, at which the surgeon reported inflamed, edematous and

thickened loops of small intestine and acute lymphadenitis in the mesenteric nodes.

This is not an accurate indication of the relative incidence of the acute and chronic stages of ileitis, since this material was taken from a gastroenterologic and surgical service organized chiefly for the treatment of chronic disease. Relatively few abdominal emergencies are admitted.

Of the 11 cases diagnosed early acute ileitis at operation, 7 had roentgenologic examination just before the operation and 1 within a few days after the abdomen was explored. Of these 7 cases, 5 showed variations from the normal appearance of the small intestine.

These cases, although few in number, constitute an important group because they supply clinical and roentgenologic data on proved cases of ileitis in its earliest stages when organic pathologic changes are minimal.

Figure 1 is a roentgenogram of a patient with early ileitis who had had abdominal pain and mild diarrhea for several weeks and an acute flare-up of right lower quadrant pain and tenderness, fever and a leukocytosis of 14,000. An operation for suspected acute appendicitis disclosed typical acute terminal ileitis. This roentgenogram was made fourteen days after the laparotomy and demonstrates the minimal changes in the terminal ileum which can be considered diagnostic. Only when these changes are relatively constant in a series of roentgenograms are they really convincing. In an analysis of the evidence of disease shown in this roentgenogram, the following features may be listed:

1. Some hypermotility in the small bowel.
2. Somewhat widely separated loops of terminal ileum suggesting thickening of the intestinal wall and mesentery.
3. Unusually long segments of pronounced spasm.
4. Irregularities of the mucosal pattern suggesting edema of the mucosa with flattening and rearrangement of the folds.

These roentgenologic details should prevent confusion with such findings as shown in figure 2. This roentgenogram shows definite segmentation of the barium in the ileum. These segments are more or less uniform in size, while serial roentgenograms show no constancy in their shape. The string sign is absent. These findings, which may be produced by any acute irritation of the small intestine, are frequently seen after catharsis. This patient was operated on two days later and found to have no organic disease of the small intestine.

Chronic Ileitis.—Our study of the diagnostic problems presented by regional ileitis in its chronic ulcerative and cicatrizing stages also was limited to cases in which the diagnosis was proved by laparotomy.

A review of the symptoms in 107 cases revealed the following incidence of important symptoms: pain, 92 cases; malnutrition with weight loss, 80 cases; fever, 65 cases; diarrhea, 60 cases; external fistula, 23 cases; abdominal mass, 40 cases, and anemia, 42 cases. The most important symptom in directing attention to the intestinal tract was pain; diarrhea was next.

A complete diagnosis in cases of chronic enteritis includes a determination of the location and extent of the disease, as well as its complications, which involve intestinal obstruction and perforations resulting in internal or external fistulas or abscesses. This information usually can be obtained by roentgenologic studies of the small intestine by barium meal and by the injection of external fistulas with iodized oil. These signs frequently are extensive and easily recognized, but from the standpoint of broadening the range of roentgenologic diagnosis the proved cases with minimal findings are of special interest.

From the Department of Gastro-Enterology, the Lahey Clinic.
Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. Crohn, B. B.; Ginzburg, L., and Oppenheimer, G.: Regional Ileitis: A Pathologic and Clinical Entity, *J. A. M. A.* 99: 1323-1329 (Oct. 15) 1932.

Figure 3 is a roentgenogram of a patient who presented only mild and unimpressive symptoms which consisted of bouts of mild abdominal pain. The findings here are certainly minimal, and if the stringlike appearance of the terminal ileum had not been constant in other roentgenograms it might easily have been



Fig 1—Five hours after a barium meal: hypermotility in the small bowel, separation of the loops of the terminal ileum, long segments of pronounced spasm and irregularities of the mucosal pattern. Diagnosis, early acute ileitis

considered nondiagnostic. However, at laparotomy there was a definite nonobstructing ileitis involving the terminal 12 inches of small intestine, which demonstrates the diagnostic importance of even slight variations from the normal pattern, provided the distortions are constant in serial roentgenograms.

When partial or complete obstruction of the small intestine develops as a complication of regional ileitis, the abdominal symptoms become more severe and the roentgenologic signs of disease are more striking. Stasis and dilatation of the small bowel are the outstanding features and may be quite pronounced without demonstrating any special characteristics that identify the nature of the obstructing lesion. For example, figure 4 shows considerable obstruction and dilatation of the ileal loops but no changes in the small intestine that are characteristic of chronic inflammation. The diagnosis of ileitis in such a case depends on the clinical features and often cannot be definite.

If, on the other hand, dilated loops of the small intestine are accompanied by distal areas of characteristic narrowing and rigidity (fig. 5), the diagnosis of chronic cicatrizing enteritis with obstruction is quite certain.

Another complication which influences the clinical picture, prognosis and plans for treatment is chronic perforation with external and internal fistulas and abscess formation. This complication usually produces striking roentgenologic effects which may be either confusing or enlightening.

Fistula formation is so characteristic of chronic ileitis that the finding of an internal or external tract connecting with the small intestine is strong presumptive evidence of ileitis. If, in addition, there are loops of small bowel showing the typical changes of chronic inflammatory disease, the diagnosis is on a sound basis. In figure 6 the ileum shows extensive typical deformity with multiple internal fistulas between the diseased portion of the small intestine and the colon. This patient also had external fistulas.

TREATMENT

The management of chronic ulcerative enteritis depends on the following factors:

1. Stage of morbid process
2. Location and extent of involvement in the small intestine
3. Activity of the inflammatory, ulcerative and cicatrizing process
4. Complications.

This disease has a profound tendency to run a chronic, slowly progressive course for an indefinite period. Although clinical remissions are fairly common, and in certain instances the morbid process appears to be permanently arrested, most cases tend to follow a relentless course with symptoms due to the persistent hyperplastic intestinal lesions and the formation of obstructive granulomas and perforations into adjacent regions.



Fig 2—Four hours after a barium meal: segmentation of barium in uniform sized masses, no rigidity or constancy in shape, and no string sign. Diagnosis, no organic disease; irritation of the ileum.

Experience in the treatment of chronic regional enteritis has proved that in properly selected cases surgical measures are successful and satisfactory. Marshall² has described the surgical measures employed in this series and has reported the clinical results.

2. Marshall, S. F.: Regional Ileitis. Surgical Management and Results of Operation, *S. Clin. North America* 23: 873-880 (June) 1943.

The selection of the type of management for cases of regional ileitis may be somewhat simplified by the classification of cases into clinical groups, as follows:

1. Early acute enteritis without complications.
2. Chronic terminal ileitis without complications.
3. Chronic terminal ileitis with complications (obstruction or perforation)
4. Extensive segmental ileojejunitis without complications
5. Extensive segmental ileojejunitis with complications

In an effort to formulate a policy in the management of this condition, our cases were separated according to this classification, and the clinical results of the various forms of therapy tabulated for each group.

1. Eleven Cases of Early Acute Enteritis Without Complications.—No patient in this group was treated surgically except for abdominal exploration with or without appendectomy. There was one hospital death two weeks after admission due to fulminating terminal ileitis with multiple perforations and peritonitis. Another patient died three months after exploration, but the cause of death is unknown. Of the remaining 9 patients, 4 have been well for over a year, and recent roentgenograms in 3 show little or no variations from normal. Four patients have had a recurrence of the disease and have required surgical resection of the ileocecal region with ileocolostomy. A fifth patient has roentgenologic evidence of progressive ileitis, but this has not been proved by operation.



Fig. 3—Five hours after a barium meal hypermotility of small intestine and a contracted stringlike terminal ileum which was also present in other films. Diagnosis, terminal ileitis

Conclusions.—In this group operative treatment is best deferred, since approximately two fifths of the cases clear up satisfactorily without surgery. Also the limits of the disease become more clearly defined in the more chronic stage, which aids in deciding on the extent of the surgical resection.

2. Eighteen Cases of Chronic Terminal Ileitis Without Complications.—Four of these 18 patients had recur-

rent terminal ileitis after an operation performed elsewhere. Eight patients were treated by a medical regimen,³ with satisfactory results in 4 cases. In 1 case no follow-up information is available. Three patients had persistent symptoms, which required subsequent surgical resection in 2.



Fig. 4—Six hours after a barium meal stasis in a much dilated ileum. The nature of the obstruction is not clearly shown. Diagnosis, chronic ileac obstruction, possibly terminal ileitis

A total of 12 patients were operated on, resection of the diseased portion of the ileum and proximal colon with ileocolostomy being done. There were no deaths. In 11 cases the results are satisfactory, with follow-up data covering a period of from six months to five years. One patient has roentgenologic and clinical evidence of recurrent ileitis proximal to the ileocolostomy, but this has not been proved by laparotomy.

Conclusions.—In cases in which the disease is relatively mild, a medical regimen should be given a trial with the hope that a prolonged remission will result or the morbid process will become arrested before serious damage is done. Probably in not more than half of the cases treated in this way will the results be satisfactory. In a majority of these cases surgery is necessary, and, as far as can be concluded from a small group, resection of the diseased ileum and the ascending colon is a safe procedure and yields satisfactory results in a large proportion of cases.

3. Fifty-Six Cases of Chronic Terminal Ileitis With Complications.—In 31 of the 56 cases in this group, the complication was obstruction, and in 27 it was perforation, with or without obstruction. Fourteen

³ There is no specific medical treatment for regional ileitis. The medical management referred to consists mainly in general supportive measures, which include bed rest for varied periods of time, usually several weeks. The diets used were bland and low in roughage, without cold foods or drinks. The protein content of the diet was maintained at a high level. Supplemental vitamins were used in moderate doses over long periods of time. Ferric sulfate was used for anemia. Transfusions were given when the hemoglobin or plasma proteins were low. The sulfonamides were tried in a few cases without any definite evidence of benefit.

patients were tried on a medical regimen, with the addition of simple drainage of an abscess in 1 case. Of these, no follow-up information is available in 2 cases. Three patients obtained satisfactory results. Nine patients later came to operation for resection of the ileum and right colon (8 performed in the clinic and 1 elsewhere).

Six patients had an ileocolostomy without resection of any intestine. In 2 of these the results were good; there was one postoperative death due to sepsis. Three patients later required resection (2 performed in the clinic and 1 elsewhere).

There were 44 resections of the ileum and right colon, including 2 cases in which an ileocolostomy was performed first. There was one postoperative death due to embolism. There were 8 recurrences after resection, proved by operation in 7 and by subsequent death from sepsis in the eighth. One other patient had clinical and roentgenologic evidence of recurrence, which was not confirmed by laparotomy. In 35 of the 44 cases of resection the results were satisfactory. In all but 7, follow-up data covered a period of over one year.

Ileostomy was performed on 2 patients, 1 of whom died postoperatively of sepsis; the other is well.

Conclusions.—1. Medical management alone has little to offer patients with chronic terminal ileitis with either complicating obstruction or perforation.

2. Ileocolostomy without resection is unsatisfactory in complicated cases, except as a preliminary step to resection.

3. The operative mortality of ileo-ascending colectomy is remarkably low in the hands of an experienced surgeon.



Fig 5—Six hours after a barium meal: delay and dilatation of the ileum above an area that is rigidly contracted and irregular in outline. Diagnosis, chronic terminal ileitis with obstruction.

4. There is a fairly high rate of recurrence of the disease even after removal of all involved areas.

4. **Eight Cases of Segmental Ileocejunitis Without Complications.**—Seven of these 8 cases were treated with a medical regimen. Although exploration was done in 3 there was no surgical treatment. Of the 7

patients, 1 is dead of malnutrition, 1 has not improved satisfactorily, 4 are improved and 1 was not followed.

The 1 patient treated surgically with resection of a large portion of the small intestine developed recurrent enteritis and died.



Fig 6—Four hours after a barium meal: extensive involvement of the ileum with narrowing, loss of flexibility and irregularities of mucosal pattern combined with multiple fistulous tracts between the ileum and the colon. Diagnosis, chronic terminal ileitis with internal fistula.

Comment.—Surgical treatment in cases of segmental enteritis presents a more difficult problem, particularly when the enteritis is widespread and involves so much of the small intestine that it cannot be eradicated completely without jeopardizing the absorptive function. Experience has shown that, if all inflamed loops of small bowel are not removed, recurrence or inadequate control of the disease is the result. Medical treatment can scarcely be expected to effect a cure, but most patients can be improved and in some instances the active disease appears to become arrested. Altogether the management of extensive segmental enteritis is less satisfactory than the treatment of localized terminal ileitis.

5. **Nine Cases of Segmental Ileocejunitis With Complications.**—In 7 of these 9 cases the complication was obstruction, and in 2 it was chronic perforation with abscess. Two patients were treated for a trial period on a medical regimen, but both came to operation. Including those patients who were operated on without trial medical treatment, 9 were treated surgically. Included in the surgical cases are 6 in whom resection of the diseased area was performed with end to end anastomosis. The clinical results were satisfactory in 5 cases, with follow-up for more than a year in all but 1. The sixth patient is improved but shows clinical and roentgenologic evidence of recurrence of enter-

itis which has not been confirmed by operation. In 3 cases the surgical measures consisted of enterenterostomy without resection, with clinically satisfactory results. There were no postoperative deaths in groups 4 and 5.

When complications are present, surgery offers the only possible solution. In some cases all disease can be resected; in others, enterenterostomy may lead to satisfactory relief. Since preoperative determination of the extent of involvement is impossible, exploratory laparotomy is probably justified in a majority of cases.

COMMENT

On the basis of the experience reported here with the treatment of 102 cases of chronic ulcerative enteritis, conservative management is indicated in the early acute forms of the disease, in mild cases of chronic uncomplicating terminal ileitis and in uncomplicated segmental enteritis with extensive involvement of the jejunum and ileum.

As a general rule, chronic terminal ileitis is best treated surgically. This is in agreement with the conclusions of Ginzburg and Garlock.⁴ When the enteritis is complicated by obstruction, fistulas or abscesses, surgical measures are definitely the treatment of choice.

Although surgery is not successful in all cases, the resection of the inflamed loops of intestine produces a high percentage of satisfactory results. Another point favoring surgical measures is the low operative mortality.

ABSTRACT OF DISCUSSION

DR. J. ARNOLD BARGEN, Rochester, Minn.: This disease still offers a challenge to every physician who is unfortunate enough to have to deal with patients so afflicted, since the cause is as yet unknown, the origin of the infection remains obscure and the course of the disease, once well established, is relentless in its advance and destructive nature. Moreover, it is not at all established that we are dealing with a single disease entity. The greatest service that Drs. Kiefer and Ross's discussion has accomplished is their classification of these conditions into the various groups, from an "early acute enteritis" to "extensive segmental enteritis with complications." By so doing they have advanced our ability to study, if not actually our knowledge of this problem materially. I am not convinced that these cases are all a part of one entity. It is more logical to consider these different forms as separate entities, although I can present no clear evidence for this suggestion. It is rather an impression I have gained through a fairly large experience in the handling of similar cases. The course of the cases of extensive "segmental ileojejunitis" varies considerably from that of the typical cases of cicatrizing "terminal ileitis." Any one who has seen a considerable number of the various groups of these patients must have been confronted with the question of explaining their variable course on the basis of single or multiple entities. More recently some observers have separated some cases of sarcoidosis from groups of cases formerly laboring under the designation of regional enteritis. Localized Hodgkin's disease has occasionally been mistaken for regional enteritis. Until the question of multiple entities can be more clearly defined, we shall do well to follow the practical classification which has been offered to us. It at once separates the cases for a reasonable therapeutic approach. It is of the utmost importance to decide as early in the course of the disease as possible whether medical measures are to be employed or whether surgical resection should be undertaken. We have administered the various sulfonamide drugs, i. e. succinylsulfathiazole, sulfaguanidine and sulfathalidine, to these patients, together with other supportive measures, and the response to such a program has in some instances determined the advisability or need of surgery. I

wonder if Dr. Kiefer would elaborate further on the nature of his medical regimen? I have been more successful in making the diagnosis of the lesions of the terminal ileum by retrograde barium injection instead of the barium meal studies; moreover, in the obstructive cases the risk associated with the passage of the column of barium from above is eliminated. I know that a technic suitable in the hands of one is not always the most satisfactory in the hands of others.

DR. HENRY A. RAFSKY, New York: I should like to ask Dr. Kiefer what the age incidence was in his cases. My experience has been that the younger the patients the more refractory they are to either medical or surgical treatment. In the management of these cases more attention should be paid to upper respiratory diseases, especially infections of the throat, as factors in producing acute exacerbations. A girl aged 16 years was first observed in August 1942. She developed ileitis after a streptococcal infection of the throat. She responded to medical measures and was well until November 1942, when she had a recurrence of the ileitis. She was operated on at the Lenox Hill Hospital. An ileotransverse colostomy with an exclusion of the diseased loop was performed. The patient was well until May 1943, when she had a recurrence. Her symptoms steadily increased and in November 1943 she was again admitted to the hospital. A mass was palpable in the right lower quadrant and x-ray examination and proctoscopy also showed evidence of ulcerative colitis. The patient went downhill notwithstanding the various medical measures employed, including transfusions, sulfonamides and vitamin therapy. During the patient's illness a pseudomembrane could be seen in the throat and *Staphylococcus aureus* could always be isolated from this region. An aphthous stomatitis also was present, which showed temporary improvement with vitamin therapy. Working on the premise that the throat infection might be the source of the acute exacerbation, I gave the patient 1,000,000 units of penicillin over a period of eight days. After one slight episode of bleeding two days after the penicillin was discontinued, the patient began to show evidence of improvement. The throat infection disappeared and her appetite became ravenous, bowel movements decreased and no further bleeding took place. The patient was discharged from the hospital in March 1944 weighing 60 pounds (27 Kg.). I heard from her recently. She is feeling well and now weighs 92 pounds (42 Kg.). I do not say that penicillin cured the ileitis but I do think it saved this patient's life during the acute exacerbation.

DR. EVERETT D. KIEFER, Boston: There is no specific medical treatment for regional ileitis. The medical management to which we referred consists mainly of generally supportive measures, including bed rest for varied periods of time, a bland, low residue, high protein diet and supplemental vitamins in moderately large doses over long periods. Ferrous sulfate was used in cases of anemia, and transfusions were given when the hemoglobin or plasma proteins were low. Sulfonamides were given in a few cases without any definite evidence of benefit as far as we could see. We have had no experience whatever with penicillin.

Somatic Psychologic and Cultural Aspects.—The concept of aging implies a decline in the structural and functional efficiency of the organism. Used in this broadest sense, aging begins at approximately the age of 21. This may be a surprising statement, but there is both experimental and experiential evidence for it. It is not an accident that a champion nearly always is beaten by a younger athlete. Prizefighters or tennis players become champions about the age of 20. There is no doubt that the experience of the champion increases with further practice and so does his judgment; but in so extreme a need for superior performance the aging process is the winner over experience. Likewise it was found that at the age of 28 a flier may be at a definite disadvantage for extreme conditions of high speed flying and that the period of blackout after a dive lengthens from the previous five to eleven seconds.—Mittelman, Bela: *Psychosomatic Medicine and the Older Patient*, from *Mental Disorders in Later Life*, edited by Oscar J. Kaplan, Stanford University Press, 1945.

⁴ Ginzburg, L., and Garlock, J. H.: Regional Ileitis, *Ann. Surg.* 116: 905-912 (Dec.) 1942.

PENICILLIN IN OTOLOGY

ITS USE IN 511 CASES OF OTITIS MEDIA AND
74 CASES OF MASTOIDITISCOMMANDER CHARLES H. ALLMAN
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The origin, preparation and action of penicillin in medicine have been so well described in the literature that I shall not discuss these subjects. Suffice it to say that penicillin is an antibiotic of the greatest importance against certain organisms whether used locally, intramuscularly, intravenously, subcutaneously, intrathecally or by a combination of these methods.

Dosage and methods of administration have not been thoroughly standardized. Cooke and Goldring¹ showed that after intramuscular injections of penicillin the concentration in the circulating blood reached its highest level within thirty minutes. It was still moderately high at the end of one hour and fell rapidly during the second hour but often persisted at lower titer for three to four hours. They found similar results after subcutaneous injection of penicillin.

Swanson and Baker² used penicillin intramuscularly in 15 cases of acute otitis media and locally in the mastoid cavity following mastoidectomy with controlled drainage in 2 cases of mastoiditis with good results. They also used penicillin locally in a case of chronic otitis media when other methods of treatment had failed. The middle ear infection cleared up in eight days, but the perforation of the tympanic membrane remained. In 1 of the mastoidectomies they instilled penicillin (1,000 Oxford units per cubic centimeter) into the mastoid cavity through a rubber tube every six hours. In addition they gave penicillin intramuscularly every three hours. In the other mastoidectomy case they instilled the penicillin (250 Oxford units per cubic centimeter) into the cavity only once a day. They stopped the outer end of the tube.

The Floreys³ advise using penicillin at three hour intervals when giving it systemically in order to maintain the proper blood level. They prefer the intramuscular route as the most practicable. They used penicillin locally in the mastoid cavity following mastoidectomy in 16 cases of acute mastoiditis and in 6 cases of acute exacerbation of chronic mastoiditis. The strength of penicillin was 250 to 500 units per cubic centimeter. It was instilled into the cavity through a short indwelling rubber tube at six hour intervals. The wound was completely closed and controlled drainage maintained. Fourteen of the acute and 5 of the chronic cases healed within ten days. There were no complications in any of their cases.

In this work I have attempted to strike a happy medium, perhaps leaning toward administering too much penicillin rather than too little. When I saw an indication or lack of complete control of the infection, as a rule I increased the frequency of the dosage rather than the size of the dose.

An instance of the use of too little appeared when I first started using penicillin locally in the mastoid cavity. I instilled it into the cavity every six hours, and when the dressings were changed the next two days the incision was not as clean as I expected to see it. After that penicillin was instilled every four hours around the clock routinely for four to seven days, depending on the appearance of the wound, the general condition of the patient and the virulence of the organism.

When using penicillin systemically I began by giving 20,000 Oxford units intramuscularly, and 10,000 units was given by the same method every three hours thereafter day and night until the tympanic membrane and postaural incision were healed.

When using penicillin locally the strength was 500 units per cubic centimeter. Ten cc. was instilled into the mastoid cavity every four hours when it was a large cavity and 5 cc. when it was small. The sodium salt of penicillin was used.

The procedure for the local use of penicillin in the mastoid cavity is as follows: After the mastoid cells and products of inflammation are thoroughly exenterated the mastoid cavity, middle ear and external auditory canal are flushed through and through with warm saline solution and then dried by suction and swabbing. The postaural incision is completely closed except for the entrance of the tube. The tube is secured in the cavity at whatever place in the incision it can lead directly to the antrum without bending.

The tube for instillation of penicillin is 10 inches in length, size 14 French, of soft flexible rubber. The inner end of the tube is placed in the antrum. The outer end of the tube extends out through the dressing to the outer surface of the bandage, where it is secured by adhesive tape. Two inches of the outer end of the tube is covered with sterile gauze, and it is cleaned with alcohol before each instillation. This flexible, soft tube can be used in the cavity even though the dura and lateral sinus are exposed, without causing trauma to either. It can be used when the lateral sinus has been opened if it is properly packed.

Penicillin was used locally for an average of 6.3 days in the cases of mastoidectomy following scarlet fever and 5.1 days in the non-scarlet fever cases, at the end of which time the tube was removed.

The postaural incisions healed by primary intention. After the first few cases the dressings were not changed for four or five days and when removed the inner layers of the dressings were soaked with penicillin and the external auditory canal and incision were completely clear of any infection. Usually the external auditory canal and mastoid cavity contained clear or blood stained penicillin.

The operative patients following scarlet fever ranged in age from 17 to 29 years, with an average age of 19.4 years. These were all males. The non-scarlet fever patients ranged in age from 1½ to 29 years. These were women and children. All of the latter patients were seen over a period of three months following operation and remained normal.

The operative patients following scarlet fever were seen by me or I had reports from them over a period of two months after operation. None of them had recurrences or further difficulty with the ears. About 10 per cent of the total number of scarlet fever patients were treated with penicillin from the onset of the disease.

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

1. Cooke, J. V., and Goldring, D.: The Concentration of Penicillin in Various Body Fluids During Penicillin Therapy, *J. A. M. A.* 127: 80-87 (Jan. 13) 1945.

2. Swanson, C. A., and Baker, D. C., Jr.: The Use of Penicillin in Diseases of the Ear, *J. A. M. A.* 126: 616-620 (Nov. 4) 1944.

3. Florey, M. E., and Florey, H. W.: General and Local Administration of Penicillin, *Lancet* 1: 387-397 (March 27) 1943.

Undoubtedly the administration of penicillin from the onset of scarlet fever reduces the incidence of ear complications. In a study of 300 patients with scarlet fever in wards giving no penicillin there was an incidence of 10.9 per cent of acute otitis media, while 300 patients in wards giving penicillin to all the scarlet fever patients showed an incidence of only 5.6 per cent otitis media.

BACTERIOLOGY

It was not practical to take cultures of the discharge from the middle ears of the scarlet fever patients or of the first mastoidectomy patients, but cultures were taken from the mastoid cavities of 23 patients at operation. Eleven of these grew *Streptococcus hemolyticus*, 2 of

lococcus aureus hemolyticus in 3 and *Streptococcus hemolyticus* and *Hemophilus influenzae* in 1.

Table 1 gives the analysis of the ear complications occurring in 5,640 cases of scarlet fever. Nine per cent developed acute otitis media, which is about the average incidence or perhaps a little lower than in the usual cases of scarlet fever treated in the routine way without chemotherapy. There were 60 cases of mastoiditis complicating this group of scarlet fever cases, giving an incidence of 1.06 per cent. There were 33 cases requiring mastoidectomy, a percentage of 0.56, and 2 cases of meningitis of otogenic origin.

All of the 511 cases of acute otitis media (table 2) treated with penicillin were complications of scarlet fever. Sixty of the cases of acute mastoiditis were in this group. Twenty-seven, or 45 per cent, of these 60 were cured by systemic treatment with penicillin and did not require surgery. Thirty-three, or 55 per cent, required mastoidectomy. The method of treatment was with penicillin 10,000 Oxford units intramuscularly every three hours night and day. No local treatment was given to the ear other than dry wipes three times a day if discharging and hot saline irrigations for pain. Penicillin was started the instant otitis media was recognized, whether or not the middle ear was discharging. The criteria for a diagnosis of otitis media were pain in the ear, reduction of hearing and the objective findings varying in degree from redness of the tympanic membrane and malleus to bulging and discharge of pus.

Not a single patient had paracentesis. I advise this procedure ordinarily, but conditions were such that it was impossible to do it. As a good surgical principle I definitely advise incision and drainage when there is pent up pus in the middle ear.

There were pronounced and rapid pathologic changes in the structures of the middle ear in these cases, as is usually found in scarlet fever. I had the opportunity of observing hourly changes in the appearance of the tympanic membrane and general condition of 50 of these patients under treatment with penicillin. Some of the tympanic membranes were definitely bulging, discolored and almost black in appearance and in a few hours showed signs of resolving, with return to normal within forty-eight to seventy-two hours. A few cases would clear up from the infection under treatment with penicillin only to develop otitis media again in a few days or even a week or two, but promptly cleared up when penicillin was given again. The drug was continued for two days after all physical signs of otitis media had subsided.

Table 3 gives the analysis of the 33 cases of mastoidectomy following scarlet fever. In 29 of these results were excellent. It required an average of only 8.2 days for healing of the postaural incision and an average of 7.4 days for clearing of the middle ear and healing of the tympanic membrane. This is about one third of the time usually required for these structures to heal in operative mastoiditis following scarlet fever without the use of chemotherapy. There was not a single case of chronic discharging ears following treatment of these cases.

The 2 cases of meningitis were otogenous in origin and were included in the group of 29 mastoidectomies with good results. These 2 were the only cases of intracranial complications in the entire series of ear infections and they were the only cases in which penicillin was not administered from the onset of the middle ear infection. These patients were admitted to the

TABLE 1.—Analysis of Ear Complications in 5,640 Cases of Scarlet Fever

	Number of Cases	Per Cent	Average Number of Days of Scarlet Fever Prior to Onset of Complications	Average Number of Days per Patient Administration of Penicillin Prior to Complications	Organisms (4)	Sulfadiazine Resistant
Acute otitis media.....	511	9	6	4 (only 10% received it)	<i>Streptococcus hemolyticus</i> type 17	Yes
Acute mastoiditis.....	60	1.06	16	10		Yes
Acute mastoiditis cured without surgery.....	27	0.5	12	8		Yes
Mastoidectomies	33	0.56	19	11		Yes
Intracranial complications (meningitis).....	2	0.03	10	0		?

TABLE 2.—Analysis of the 511 Cases of Acute Otitis Media Treated with Penicillin

	Number of Cases	Per Cent	Average Number of Days Treated Prior to Surgery	Average Units of Penicillin per Patient
Cured without discharging.....	346	67.7	2.8	224,000
Cured after onset of discharge.....	105	20.5	4.3	344,000
Acute mastoiditis.....	60	11.7	12	960,000
Acute mastoiditis cured without	27	5.3	11	880,000
gitis).....	33	6.4	13	1,040,000
gitis).....	2	0.39	0	

which were typed and showed type 17. It is reasonable to assume that all of these patients were infected with the same strain of organism.

Typings of the organisms cultured from the throats were done on 3,000 of these scarlet fever patients by the epidemiologist Lieut. Comdr. L. E. Eckels.⁴ All of these showed *Streptococcus hemolyticus* type 17, a potent toxin producer and highly communicable. These organisms were resistant to sulfadiazine in *in vitro* studies. They grew in 125 mg. per hundred cubic centimeters of sodium sulfadiazine in solution. Over 75 per cent of the patients with scarlet fever had received sulfadiazine prophylactically from a few days to two months prior to development of the disease. This was discontinued when it was determined that the organism was resistant to the drug.

Cultures from the mastoid cavities of the 14 non-scarlet fever patients who underwent mastoidectomy grew *Streptococcus hemolyticus* in 4 instances, *Staphy-*

4. Eckels, L. E.: Personal communication to the author.

hospital with fully developed meningitis, 1 comatose, the other semicomatose and irrational. Their initial, white blood cell count in the spinal fluid was 6,000 and 5,800. Neither one had received penicillin or other chemotherapy up to this time. Mastoidectomies were done on both patients. They were given penicillin 100,000 units intravenously the first twelve hours, penicillin 15,000 units intrathecally immediately and penicillin 10,000 units intramuscularly every two hours for two days and every three hours thereafter until complete recovery. One patient was given a second dose of penicillin intrathecally on the second day after operation. Penicillin was used locally in the mastoid cavity in the usual way.

As we had no knowledge whether or not the infecting organism was sulfonamide resistant in these 2 patients, they were given sodium sulfadiazine 4 Gm. intravenously every six hours for two days. Both of them recovered consciousness rapidly and were up and about

partly closed with a drain emerging from the lower end of the wound. The comparison as to healing time and hospitalization is striking, being reduced to almost a third of the time when penicillin was used. This table also shows the results of postmastoidectomy treatment with penicillin in 4 cases of chronic mastoiditis. The results in these cases were not remarkable. The postaural incision healed fairly rapidly in all 4 cases but the tympanic membrane healed promptly in only 1 case. In 1 case the discharge from the middle ear continued for three months, at which time it ceased and the tympanic membrane healed. Penicillin was used twice a day in the external auditory canal until it healed. In the other 2 cases of chronic mastoiditis a discharge from the middle ear persists three months after operation in spite of the use of penicillin in the external auditory canal.

There was not a single death in the entire series of cases.

TABLE 3.—Analysis of the 33 Cases of Mastoidectomy Following Scarlet Fever

	Number of Cases	Per Cent	Average Number of Days Required to Heal		Lateral Sinus Opened and Packed		Organisms Cultured from Mastoid	Total Units of Penicillin Given per Patient
			Incision	Drum	Surgical	Accidental		
Mastoidectomy results:								
Excellent.....	29	88	8.2	7.4	..	..	9 Streptococcus hemolyticus	835,000
Fair.....	4	12	22.0	20.3	1	2	2 Streptococcus hemolyticus	1,624,000
Intracranial complications (meningitis).....	2	6	9.0	7.0	1	..	2 Streptococcus hemolyticus	2,215,000

TABLE 4.—Analysis of 17 Cases of Mastoidectomy, Non-Scarlet Fever

	Number of Cases	Duration of Otitis Media Prior to Surgery	Number of Days Penicillin Was Administered		Average Number of Days Required to Heal		Organisms Cultured from Mastoid	Number of Days of Hospitalization	Total Units of Penicillin Administered per Patient
			Locally	Intramuscularly	Incision	Drum			
Acute mastoiditis (penicillin used).....	10	30 days	5	7	6.3	6.3	1 Hemophilus influenzae 4 Streptococcus hemolyticus	7.1	572,750
Acute mastoiditis (penicillin not used)...	3	29 days	0	0	18.3	20.6	1 Streptococcus hemolyticus	17.3	0
Chronic mastoiditis (penicillin used)....	4	18.4 years	7	10	9	2 healed 2 perforated	3 Staphylococcus aureus hemolyticus	10	835,000

in ten days. Cultures from the mastoids grew Streptococcus hemolyticus type 17. There was no growth on the cultures from the spinal fluid in either case. Twenty-four hours after the beginning of treatment of these 2 patients their spinal fluid showed less than 0.5 unit of penicillin per cubic centimeter of fluid.

Three of the 4 patients treated with only fair results (table 3) had their lateral sinuses opened and packed at operation. Possibly this was the reason why healing did not occur and the infection clear up sooner although penicillin was administered in the usual way. There was no obvious reason for the fourth case in this group not doing well. The postaural wound broke down on the fourth day after operation, drained pus profusely and did not heal for twenty-seven days.

Table 4 gives the analysis of 17 mastoidectomies on the patients with non-scarlet fever mastoiditis. Ten of these were operated on for acute mastoiditis and penicillin was administered in the usual way. All of them healed rapidly, requiring an average of only 6.3 days for the postaural incision and tympanic membrane to heal. Postoperative hospitalization lasted an average of 7.1 days.

Three of these patients were operated on for acute mastoiditis before I started using penicillin. The mastoid cavity was packed with iodoform gauze, the wound

Engler⁵ made a survey of otitis media in scarlet fever at the Cleveland City Hospital over the ten year period from Jan. 1, 1930 to Jan. 1, 1940. During this period there were 8,229 cases of scarlet fever admitted. There

TABLE 5.—Comparison of the Ear Complications in Engler's Survey of 8,229 Cases of Scarlet Fever and Author's Group of 5,640 Cases

	Engler's Survey				Author's Cases			
	Number of Cases	Per Cent	Per Cent of Otitis Media Cases Requiring Mastoidectomy	Mortality, per Cent	Number of Cases	Per Cent	Per Cent of Otitis Media Cases Requiring Mastoidectomy	Mortality
Otitis media....	798	9.7	19.3	3.7	511	9.0	6.4	0
Mastoiditis.....	154	1.9	....	5.8	60	1.06	...	0
Mastoidectomy	154	1.9	....	5.8	33	0.56	...	0
Intracranial complications	14	0.17	....	0.10	2	0.03	...	0

were 798 complications of otitis media, an incidence of 9.7 per cent; 154 cases of mastoiditis, an incidence of 1.9 per cent, and 14 cases of intracranial complications, an incidence of 0.17 per cent (table 5). In 19.3 per

5. Engler, C. W.: Otitis Media in Scarlet Fever: A Survey of Cases at Cleveland City Hospital for Past Ten Years, Ohio State M. J. 37: 139-143 (Feb.) 1941.

cent of his 798 cases of otitis media mastoiditis developed and in 1.8 per cent intracranial complications developed. The mortality rate in his survey of otitis media cases was 3.7 per cent and in the cases of mastoiditis 5.8 per cent. The first seven years of Engler's survey period was previous to the advent of chemotherapy for ear diseases, and during this time mastoiditis developed in 20.2 per cent of the cases of otitis media, while during the last three years of his survey sulfanilamide was administered in the otitis media cases and mastoiditis developed in only 14 per cent.

Table 5 gives a comparison of the results in this series of cases I have reported with those of Engler's survey. In noting the difference in morbidity and not a death among my cases it must be realized that the incidence of ear complications following scarlet fever is greater in young children from the ages of 1 to 8 years than in adults. In his survey 76.4 per cent of all the otitis media cases were in this age group. Nevertheless to observe these sick men (and most of them were very sick) from day to day and see the pronounced and rapid improvement, one must give much credit to penicillin. I am sure that some of them would have died and the morbidity would have been much greater without its use.

SUMMARY

Penicillin was used intramuscularly in the treatment of 511 cases of scarlet fever otitis media. It cured 27 cases of scarlet fever mastoiditis without surgery. It was used intramuscularly and locally in 33 cases of scarlet fever mastoiditis requiring surgery, in 2 of which meningitis was present. It was administered by the same methods in the postoperative treatment of 14 non-scarlet fever cases of mastoiditis. Ten of these were acute and 4 were chronic. Penicillin kept the morbidity to a minimum and there were no deaths.

520 Commonwealth Avenue.

✓ CYANOSIS IN INFANTS CAUSED BY NITRATES IN WELL WATER

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IOWA CITY

Two examples of a previously unrecognized condition which may be confused with congenital heart disease are cited in this report. The condition may occur anywhere in rural areas where well water is used in infant feeding.

REPORT OF CASES

CASE I.—C. H., a white female baby, was born two weeks before the expected date by cesarean section because of toxemia of pregnancy, which had been severe for one month. The birth weight was 3,870 Gm. (8 pounds 8 ounces). There was no known neonatal distress. On the twelfth day after birth, when she left the hospital, she weighed 3,720 grams (8 pounds 3 ounces). The formula she was receiving at that time was evaporated milk 210 cc. and water 540 cc. with 30 Gm. of a dextrin-maltose preparation.

From the Department of Pediatrics, State University of Iowa College of Medicine.

Dr. Robert L. Jackson admitted the first patient to the Children's Hospital and gave the author the opportunity to study his patient. The second patient was admitted, and the diagnosis was made, by Dr. Julia McElhinney.

The methemoglobin determinations in the 2 cases were carried out by Mr. George Dubey Jr., research assistant in the Department of Internal Medicine, State University of Iowa, using the method of Michel and Harris (*J. Lab. & Clin. Med.* 25: 445 [Feb.] 1940).

The analyses of the samples of well water were made by Dr. J. Garth Johnson, principal water analyst, State Hygienic Laboratory, Iowa State Department of Health. The nitrate determinations were carried out by means of the phenol-disulfonic acid method. Methods for Examination of Water and Sewage, 18th ed., American Public Health Association, Lancaster, Pa., Lancaster Press, Inc., 1936, p. 48).

She was admitted to a local hospital at 18 days of age because of vomiting, excessive crying and failure to gain weight. After admission an acidified skim milk formula was substituted and, because diarrhea followed, 1 teaspoon of a kaolin-pectin powder was added to each bottle of formula. The baby was discharged at the age of 27 days, having gained 360 Gm. (12 ounces).

She was seen again because of diarrhea at 31 days of age, at which time it was suspected that she might be allergic to the milk formula. A proprietary food mixture with soy bean powder as its principal ingredient was prescribed. The formula consisted of 80 Gm. of this mixture and 840 cc. of boiled water.

Two days later, after nine to twelve hours of irritability, the infant was noticed to be decidedly cyanotic and drowsy. So alarming were the signs that the parents rushed the baby again to the local hospital. Physical examination at that time revealed no evidence of pneumonia, atelectasis or pneumothorax; the heart sounds were good and the temperature was normal. A defective oil burner was in use in the home, and although the picture was not consistent with carbon monoxide poisoning a peculiar gaseous poison producing methemoglobinemia was suspected. Preliminary treatment with oxygen for thirty minutes resulted in no change. Therefore 1 per cent methylene blue, 1.1 cc. for each kilogram of body weight, was administered under the scalp, and the local area was massaged vigorously. Within thirty minutes the color, respirations and heart rate were normal. The cyanosis did not recur in the hospital, and the baby was discharged in a week, asymptomatic and taking the soy bean formula satisfactorily.

Forty-eight hours later the baby again was taken to the hospital with similar signs, and the same treatment was employed. (This time the aforementioned oil burner had not been in use.) She was hospitalized for sixteen days and at the time of discharge weighed 4,545 grams (10 pounds), had normal stools and was taking her soy bean and water formula in a normal, healthy fashion.

Two days later the parents suspected the onset of the same condition and returned with her to the hospital. This time the signs evidently were not convincing, for the baby was not admitted or treated. The parents were assured that she was well and were told to take her home.

Much to every one's disappointment, the baby was readmitted the next day suffering the worst attack of any. Two hours were required for the methylene blue treatment to relieve her distress.

It was realized that the only significant change in the infant's environment from hospital to farm home was in the water. Sulfhemoglobinemia being a remote possibility, the water was analyzed but no sulfides were found. The water was not tested bacteriologically. Nevertheless, the parents were warned not to give any more well water, and a formula of acidified whole milk was substituted.

The infant's father was dissatisfied with this incomplete explanation and also was loath to accept the possibility that his daughter was abnormal. Therefore arrangements were made to have her admitted to the Children's Hospital of the University of Iowa. The father believed that a peculiar reaction occurred between the well water and the soy bean preparation, producing a poison which caused her distress. Hence he asked the admitting physician if it would be desirable to bring samples of the water and powdered formula to the hospital for analysis. An open minded attitude on the part of the latter in accepting this "cock and bull" theory as plausible resulted in the father's bringing the water, which yielded the answer to the problem.

Physical examination on admission to the Children's Hospital revealed no abnormalities. The urine was normal. The red blood cell count was 3.2 million, with 11 Gm. of hemoglobin. The white blood cell count was 6,750, with a normal differential count. The blood Wassermann and Kline reactions were negative. A roentgenogram of the chest showed no abnormality. An analysis of the baby's blood for methemoglobin yielded a high normal value¹ of 0.18 Gm. for each hundred cubic centimeters.

1. Paul, W. D., and Kemp, C. R.: Methemoglobin: A Normal Constituent of Blood, *Proc. Soc. Exper. Biol. & Med.* 56: 55-56 (May) 1944.

Reports in the literature of infantile methemoglobinemia caused by bismuth subnitrate suggested that nitrates might be the causative agent in this case. It was thought that the well water might contain toxic amounts of nitrates. An analysis of the water confirmed this suspicion. An unboiled sample of water had a nitrate nitrogen value of 140 parts per million, which is equivalent to 0.619 Gm. of nitrate ion to the liter. One Gm. of potassium nitrate (saltpeter) in a liter of water approximates this nitrate ion concentration. The sample contained 0.4 mg. of nitrite ion to the liter.

A second sample of water collected from the well several days later and boiled the same length of time as that given the baby contained 0.530 Gm. of nitrate ion to the liter, which approaches the amount found in the first sample analyzed. Culture of water from the well revealed the water to be highly polluted, as an M. P. N. (most probably number of coliform organisms for each hundred cubic centimeters) of 240 was obtained. U. S. Public Health Service drinking water standards allow an M. P. N. of not more than 5.

The baby was sent home on the fifth hospital day, receiving a half-skimmed, acidified milk formula to which no water was to be added. When seen by the family physician at the age of 4 months, no evidence of any permanent central nervous system damage from cerebral anoxia was found.

CASE 2.—S. M., a white female baby, was born normally after an uneventful pregnancy. The birth weight was 3,400 Gm. (7 pounds 8 ounces). There was no neonatal distress, and she had almost regained her birth weight when she left the

*Decrease in Methemoglobin Content After Administration
of Methylene Blue*

Sample	Time	Methemoglobin Content
1	4:30 p. m.	2.65 Gm. for each 100 cc.
2	7:20 p. m.	2.72 Gm. for each 100 cc.
3	9:10 p. m.	2.70 Gm. for each 100 cc.
	10:13 p. m.	Methylene blue
4	10:45 p. m.	0.18 Gm. for each 100 cc.
5	11:54 p. m.	0.25 Gm. for each 100 cc.
6	11 a. m. (next day)	0.22 Gm. for each 100 cc.

hospital on the ninth day after birth. A formula of evaporated milk, water and corn syrup was prescribed. The baby developed diarrhea with eight to ten loose, green stools a day but did not vomit. At 27 days of age she became "blanched out," cyanotic and drowsy and was taken to the family physician. On this day she weighed 4,140 Gm. (9 pounds 2 ounces) in her clothing. The physician informed the parents that they had a blue baby. After an adjustment of the formula was made, the baby was sent home. At 31 days of age a formula of evaporated milk 210 cc., boiled-water 510 cc. and corn syrup 45 cc. was given.

The cyanosis never again became so noticeable as on the twenty-seventh day after birth, but it remained obvious and caused the parents to bring the baby to the Children's Hospital at the age of 38 days. Physical examination on entry revealed that the infant was well developed and well nourished, with a moderately cyanotic skin. Crying intensified the cyanosis. The fontanel was soft. The heart rate was not rapid, and no murmur was heard. The chest was clear to percussion and auscultation. Neither the liver nor the spleen seemed enlarged. The buttocks were moderately excoriated, attesting the persistent diarrhea. Laboratory data included negative blood Wassermann and Kline reactions. The Haden-Hausser hemoglobin value was 13 Gm., the red blood cell count was 2.95 million and the white blood cell count was 10,000, with a normal differential count.

Blood samples were collected at 4.30 p. m. (just before a feeding), at 7:20 p. m. and at 9:10 p. m. At 10:13 p. m. 0.6 cc. of a 1 per cent solution of methylene blue was administered intravenously (a dosage of approximately 1.5 mg. for each kilogram of body weight). Blood samples were then collected at 10:45 p. m., at 11:45 p. m. and at 11 a. m. the

next day. These were taken immediately to the laboratory, and within one-half hour in each case the quantitative determination of methemoglobin was carried out. The results are given in the table.

The first three samples of blood when drawn were of a peculiar chocolate color. One-half hour after the methylene blue was given, the blood was normal in color. The change in the infant's appearance was especially dramatic. Unfortunately, accurate measurements of pulse and respiration were not made, but two observers noted that the infant's cry and behavior were more vigorous and that the skin color was excellent.

A sample of the well water used in preparing the infant's formula had a nitrate nitrogen value of 90 parts per million, which is equivalent to 0.388 Gm. of nitrate ion to the liter. This is roughly two-thirds the amount present in case 1. The nitrite ion content was 1.314 mg. to the liter. An attempt to analyze the formula to determine the exact amount of nitrate ion contained was unsuccessful because of caramelization. It would appear that the baby ingested approximately 0.20 Gm. of nitrate ion a day, roughly equivalent to $\frac{1}{3}$ Gm. of potassium nitrate.

The well water was tested bacteriologically and found to be as badly polluted as the well in case 1.

Samples of blood from the mother and father, both of whom drank the unboiled well water, revealed no abnormal quantities of methemoglobin.

The baby was sent home, asymptomatic, on the second hospital day and has continued to do well. No further attacks of cyanosis have occurred.

COMMENT

Since these patients were seen by us, the Iowa State Hygienic Laboratory has received from similar wells five other samples of water containing large amounts of nitrates. The analyses were made because infants who drank the water were cyanotic. Four of these five definitely became blue after formulas containing the water were given. In the fifth case an accurate history was not obtainable; the infant in question was noted to have a "rattle in the chest," and he experienced difficulty in breathing. Thus it is possible that methemoglobinemia existed alone, that true anoxicemic cyanosis was present or that the two conditions coexisted. This last infant had a bad start in life and was hospitalized at the age of 10 months at the Children's Hospital because of chronic diarrhea, stomatitis, bronchitis and malnutrition. One can only speculate as to the effect of prolonged ingestion of such water by infants.

Dr. Morgan J. Foster² of Cedar Rapids, Iowa, states that he has seen 5 similar cases in his practice. All the infants tended to be irritable and had diarrhea. Four were treated with methylene blue, and 1 infant died before the methylene blue treatment was known. From his records he noted that all the infants were receiving diluted milk formulas and that they came from farms in southeastern Iowa.

Dr. Roland Stahr,² formerly of Fort Dodge, Iowa, reported 5 cases of idiopathic cyanosis at the annual meeting of the American Academy of Pediatrics in San Francisco during May 1941. All of the infants had gastrointestinal disturbances. Twin infants, 26 days old, had mild cyanosis while receiving a diluted milk formula. Because of diarrhea a dried skim milk and water mixture was given. Deep cyanosis followed within a few hours in both infants. Methemoglobinemia was proved to be the source of the cyanosis. It cannot be stated definitely that these babies received well water, but 4 of the patients lived in northern rural Iowa.

2. Personal communication to the author.

Schwartz and Rector³ reported the occurrence of methemoglobinemia of unknown origin in an infant aged 2 weeks. This baby was receiving a diluted evaporated milk formula. Their report does not state whether or not the infant came from a farm home where well water was used, but the general picture is similar. The infant was treated effectively with methylene blue.

Members of our staff, after having learned of this condition, saw 2 babies who were cyanotic without obvious cause. Both infants improved when the well water was removed from the feedings. In retrospect it was realized that 2 other infants, both from the same family, had been seen in consultation because of a peculiar cyanosis. Checking back, it was found that they both were taking evaporated milk feedings diluted with well water. Both of them had recovered when feedings containing less well water were given.

Thus it would seem that this condition is not rare, and a discussion of certain of its aspects may be helpful:

Cyanosis is due ordinarily to the presence of unusually large amounts of reduced hemoglobin in the subpapillary venous plexuses of the skin. Conditions such as cardiac or pulmonary disease, polycythemia or occlusions of major vessels in the extremities commonly result in cyanosis.

Abnormal compounds of hemoglobin, possessing differing absorption spectrums, may impart a peculiar hue to the skin. Thus, carbon monoxide reacts with hemoglobin to form carboxyhemoglobin, which in sufficient amount produces the striking "cherry red cyanosis." Likewise, methemoglobinemia may be associated with an unusual brown-gray skin color, sufficiently different from the color of reduced hemoglobin to arouse the suspicion that the primary difficulty is not common anoxemia.

Methemoglobinemia may follow the administration of such chemicals as aniline, nitrophenol, sulfanilamide, potassium chlorate and nitrates. That nitrates may be associated with serious or fatal methemoglobinemia in infants has been realized since bismuth subnitrate first was used as a contrast medium by roentgenologists. Roe⁴ in 1933 reported the death of a 1 month old infant with diarrhea who had received 0.6 Gm. of bismuth subnitrate every two hours "until the stools became black." Cyanosis occurred in twenty-four hours. Thirteen Gm. of the drug was given in forty-four hours, and despite oxygen therapy death occurred sixty hours after the drug first was given. Roe emphasized the dangers inherent in the use of this bismuth compound and recommended the use of bismuth subcarbonate in the treatment of diarrhea.

Nitrate methemoglobinemia in adults has been reported less frequently. Eusterman and Keith⁵ administered ammonium nitrate orally for diuretic purposes to a large series of adults; 2 patients developed methemoglobinemia. In 1, extreme cyanosis occurred when 54 Gm. was given in eight days. These workers gave ammonium nitrate intravenously to dogs and failed to produce methemoglobinemia. They concluded that the nitrate ion was transformed to nitrite by some abnormal metabolic process present in the 2 patients, both of whom had intestinal stasis.

That the nitrite ion will bring about methemoglobinemia is well established. In the treatment of cyanide poisoning Chen, Rose and Clowes⁶ showed sodium nitrite (administered intravenously) to be an effective agent for producing methemoglobinemia. Greenberg, Lester and Haggard⁷ demonstrated *in vitro* that one molecule of a nitrite ion reacts with two molecules of hemoglobin to form methemoglobin. In acid mediums the conversion to methemoglobin occurs rapidly; in neutral or alkaline solutions the conversion is delayed.

Van den Bergh⁸ in 1905 indicated that nitrites could be formed in the bowel from nitrates and that absorption of the nitrite ion was encouraged by the presence of damaged intestinal mucosa. ZoBell⁹ demonstrated *in vitro* that many organisms commonly found in the gastrointestinal tract were capable of converting nitrates to nitrites.

Thus it would seem that the methemoglobinemia of the infants of this report was produced as the result of the ingestion of well water containing large amounts of nitrate compounds. The nitrate ion was probably converted to the nitrite ion in the intestine by bacterial action. The nitrite ion, so formed, was absorbed and reacted with hemoglobin to form methemoglobin. The amount of nitrites already present in the well water was probably of little significance.

Although the fact that the infant possesses much less oxidizable hemoglobin than the adult is probably the most important single factor in making him more susceptible to nitrate compounds, other factors may conspire to render nitrates more toxic. Thus the bacterial flora may include more nitrate converters than in the adult. Gastrointestinal disturbances in infants are more common than in adulthood, and the delicate mucosa may be injured more easily. In the infant the high fluid turnover and more rapid circulation may favor more complete absorption of the nitrite ions from the intestine. It is possible that the nitrite ions may be more firmly bound by infantile hemoglobin (which differs from adult hemoglobin) because of immaturity of certain enzymes. Stevenson¹⁰ has shown that carbonic anhydrase, to name one such enzyme, is present in relatively small quantities in the infant. Further the limited excretory power of the immature kidney may favor retention of the nitrite ion.

The 2 infants who were the subjects of this report had gastrointestinal disturbances. Whether a separate cause brought about the diarrhea and vomiting in each case or whether the nitrate salts themselves or other constituents of the putrid water incited the diarrhea cannot be ascertained. Since the gastrointestinal symptoms were almost universal and in certain cases became more severe as the formulas were further diluted with the well water, it seems likely that the cause for the whole difficulty may have been in the water. It cannot, however, be stated positively that gastrointestinal disturbances always accompany this condition, as there was no such complaint by a patient seen recently.

Neither parent of the baby in case 2 had abnormal methemoglobinemia. It is clear that the nitrate intake

3. Schwartz, A. S., and Rector, E. J.: Methemoglobinemia of Unknown Origin in a Two Week Old Infant. *Am. J. Dis. Child.* 60: 652-659 (Sept.) 1940.

4. Roe, H. E.: Methemoglobinemia Following the Administration of Bismuth Subnitrate: Report of a Fatal Case, *J. A. M. A.* 101: 352-354 (July 20) 1933.

5. Eusterman, G. B., and Keith, N. M.: Transient Methemoglobinemia Following Administration of Ammonium Nitrate, *M. Clin. North America* 12: 1489-1496 (May) 1929.

6. Chen, K. K.; Rose, C. L., and Clowes, G. H. A.: Comparative Values of Several Antidotes in Cyanide Poisoning, *Am. J. M. Sc.* 189: 767-781 (Dec.) 1934.

7. Greenberg, L. A.; Lester, D., and Haggard, H. W.: The Reaction of Hemoglobin with Nitrite, *J. Biol. Chem.* 151: 665-673 (Dec.) 1943.

8. van den Bergh, A. A. H.: Enterogene Cyanose, *Deutsches Arch. f. Klin. Med.* 83: 86-106 (May 18) 1905.

9. ZoBell, C. E.: Factors Influencing the Reduction of Nitrates to Nitrites by Bacteria in Semisolid Media, *J. Bact.* 21: 273-281 (Oct.) 1932.

10. Stevenson, S. S.: Carbonic Anhydrase in Newborn Infants, *J. Clin. Investigation* 22: 403-407 (May) 1943.

was too low for a significant amount of hemoglobin to become converted. A minimal degree of methemoglobinemia is physiologic¹ and its reduction to hemoglobin is probably a continuous process. With intermittent, relatively low dosage a clinically detectable level could hardly be built up in the adults, whereas in the infant a relatively large, constant and regularly timed intake may, under certain circumstances, build up a fatal level.

Wendel¹¹ in 1939 studied the effect of methylene blue in the sodium nitrite-induced methemoglobinemia of dogs. At his suggestion Hartmann and his associates¹² used the dye in the prophylaxis and therapy of sulfanilamide-induced methemoglobinemia. These workers showed that a single intravenous dose of from 1 to 2 mg. for each kilogram of body weight would rapidly clear the cyanosis. Sixty-five to 130 mg. of the dye for each kilogram of body weight given every four hours by mouth would prevent the cyanosis of sulfanilamide administration. They warned that occasionally vomiting, diarrhea, headache and tinnitus occurred when methylene blue was given by mouth. Perivascular infiltration may lead to painful induration or even to necrosis. No serious reactions were encountered.

The mechanism of action of methylene blue in effecting the rapid transformation is not clearly understood. Paradoxically, in high concentration it oxidizes the ferrous iron of reduced hemoglobin to the ferric iron of methemoglobin, as do nitrites. This function has been used in the treatment of cyanide poisoning. In lower concentrations the drug seems to catalyze the physiologic reduction of methemoglobin by the body. It has been suggested by Wendel¹¹ that the leuko- or reduced form of the dye is formed in the erythrocytes and other body cells by certain cellular enzymes. This form may then act catalytically to promote the reduction of methemoglobin.

The high nitrate water which the cyanotic infants ingested came from very undesirable wells. In many cases the wells were old, dug rather than drilled, had inadequate casings or none at all, and were poorly covered so that surface water, animal excreta and other objectionable material could enter freely. In every one of the instances in which cyanosis developed in infants the wells were situated near barnyards and pit privies. Some of the wells had trees growing nearby, and the roots had penetrated or broken down the casings. In four of the five the water was highly contaminated with coliform organisms, but in the fifth case the water was bacteriologically safe for drinking purposes. This point serves to emphasize the fact that a well may be acceptable with respect to bacterial content and yet be potentially dangerous for use in infant feeding. It is not difficult to visualize how such a situation may arise: water seeping from barnyards and privy pits, heavily laden with bacteria and dissolved nitrogenous materials, becomes increasingly purified by passage through the soil. Certain soil bacteria have the power to oxidize ammonia and other nitrogen compounds to nitrates. The solution of nitrates so formed, rendered free from coliform organisms by the competitive growth

of the hardy soil bacteria, may then enter subsurface water channels leading directly into wells used for drinking purposes. In periods of low water table the passage of the water through the earth may be slower. This slow passage may allow more nitrate to be leached from the soil and become concentrated in the wells until toxic amounts are present.

The nitrate content of water taken from wells in Iowa varied from zero to 125 parts per million (as nitrate nitrogen) in a survey made of 2,000 samples taken from domestic and municipal wells in 1934 and 1935.¹³ The highest nitrate nitrogen content on record in the State Hygienic Laboratory is 567 parts per million.¹⁴ The nitrate nitrogen of the water given to the infants varied from 64 to 140 parts per million, and the severity of symptoms seemed to parallel roughly the amount of nitrate present. Although no definite statement can be made, it would seem advisable to recommend that well water used in infant feeding possess a nitrate content no higher than 10 or, at the most, 20 parts per million.

Since Jan. 1, 1945, of 91 samples of water from dug wells sent for routine analysis by their owners 18, or roughly 20 per cent, had nitrate nitrogen values above 65 parts per million. These waters might be seriously toxic to infants if fed in any appreciable amounts. Fifty-one samples, or 56 per cent, contained amounts of nitrate greater than 10 parts per million.¹⁵

This, doubtless, is not a fair sampling of the domestic wells in Iowa, as all the water was sent in because, for one reason or another, its purity was doubted. It does serve to show, however, the frequency with which high nitrate values will be found if the water is suspected for any of the usual reasons.

All but one of the wells with high nitrate water were dug wells, most of which probably had defective casings. All but one of the samples of water causing symptoms in infants came from similar wells. In the latter exception the well was drilled but the condition of the casing was in doubt.

The bacteriologic data accumulated from these wells are typical of those commonly found. From 75 to 77 per cent of the privately owned wells in Iowa are contaminated, as evidenced by the presence of large numbers of coliform organisms.¹⁵

From the foregoing discussion it is obvious that artificial feeding of the farm baby is fraught with potential danger, and it serves to emphasize the desirability of breast feeding whenever possible. Certainly, in view of the deplorable condition of most wells, the physician should make inquiry regarding the source of water which the infant will receive. (A valuable booklet setting forth the sanitary standards for hand-pumped wells is obtainable.¹⁶) That all such drinking water should be boiled is clear. However, it must be understood that even boiling the water may not render it safe. If the source is under suspicion, the physician will do well to prescribe a formula containing relatively little water. Thus, a diluted whole milk feeding would be preferable to a diluted evaporated milk mixture. A dried milk and water formula would be most dangerous, whereas an acidified, boiled, undiluted milk feeding would provide the greatest possible margin of safety.

11. Wendel, W. B.: The Control of Methemoglobinemia with Methylene Blue, *J. Clin. Investigation* 18: 179-185 (March) 1939.

12. Hartmann, A. F.; Perley, A. M., and Barrett, H. L.: A Study of Some of the Physiological Effects of Sulfanilamide: II. Methemoglobin Formation and Its Control, *J. Clin. Investigation* 17: 699-710 (Nov.) 1938.

13. Mineral Analysis of the Underground Waters of Iowa, Des Moines, Iowa State Planning Board, 1938.

14. Personal communication to the author.

15. Biennial Reports of the Iowa State Department of Health, 1944, to be published.

16. Sanitary Standards for Hand Pumped Wells, Bulletin of Iowa State Department of Health, November 1942.

SUMMARY

Cyanosis due to methemoglobinemia may occur in infants with gastrointestinal disturbances who receive boiled water which comes from poorly constructed dug or drilled farmyard wells with defective casings. The water may contain large amounts of nitrate compounds which, when ingested, are converted by bacterial action to nitrites. The nitrite ion is absorbed and oxidizes hemoglobin to methemoglobin.

The intravenous administration of methylene blue in the dosage of 1 to 2 mg. for each kilogram of body weight promptly relieves the infant's cyanosis and distress.

The condition is not rare. Ample opportunity for its frequent occurrence exists. The condition may occur in any degree of severity, either acutely, subacutely or chronically. It may possibly lead to a fatal outcome. In all probability certain instances are incorrectly interpreted as being due to congenital heart disease.¹⁷

LESIONS OF SMALL INTESTINE PRODUCING MASSIVE HEMORRHAGE

WITH SYMPTOMS SIMULATING 'PEPTIC ULCER

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Neither pronounced melena alone nor pain alone caused by lesions in the jejunum or ileum is too unusual. There are many such reports in the literature. However, the combination of these two symptoms presenting a picture simulating peptic ulcer but produced by pathologic conditions in the small intestine beyond the duodenum has not been emphasized in the literature. Articles by Dudley¹ and Klingenstein² are the only two we noted that stressed such a syndrome. Thus, it seems of value to report our experience with this combination of melena and postprandial pain due to lesions of the small intestine beyond the duodenum even though our cases have been few in number.

During the past two years we have encountered 3 such patients. Two of these patients had repeated hospital admissions, at which times they were treated medically for bleeding duodenal ulcer. The third patient had only one hospital admission and was suspected at first of having a bleeding peptic ulcer. All of these patients were operated on and each was found to have a lesion of the small intestine as the cause of the massive hemorrhage and the symptoms simulating those of peptic ulcer.

17 Since this article was submitted for publication an intensely cyanotic infant was admitted to the Children's Hospital. Because he seemed to be in no particular distress, the methylene blue treatment was withheld. Twenty-four hours after the well water feedings were stopped the baby's color was normal.

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

From the Department of Medicine of the Genesee Hospital and the Departments of Medicine and Surgery of the Strong Memorial and Rochester Municipal Hospitals of the University of Rochester School of Medicine and Dentistry.

1 Dudley, H. D.: Vascular Tumors of the Small Intestine with Symptoms Simulating Peptic Ulcer, *S Clin North America* 14: 1331-1337, 1934.

2 Klingenstein, Percy: Benign Neoplasms of the Small Intestine Complicated by Severe Hemorrhage: Report of Two Cases; Operative Intervention and Recovery, *J. Mount Sinai Hosp* 4: 972-979, 1938.

REPORT OF CASES

CASE 1.—A R., a woman aged 49, seen at the Genesee Hospital in 1940, had had an appendectomy and a right tubal pregnancy. The first episode of tarry stools occurred in 1932 at which time a gastrointestinal series showed an inconstant irregularity in the duodenal bulb, and the oral cholecystogram revealed a calculus in the gallbladder. The diagnosis was duodenal ulcer with hemorrhage and the patient was placed on an ulcer regimen. Following this admission the patient



Fig 1 (case 1).—Sections of carcinoid tumor of the jejunum. a, intact mucosa and submucosa with the carcinoid cells in the muscularis layer. b, higher magnification of the carcinoid cells in the muscularis layer. The sections are slightly reduced from photomicrographs with a magnification (a) of 100 diameters and (b) of 430 diameters.

had six more hospital admissions, four of which were for episodes of severe melena with pronounced anemia. The stools varied from reddish to a tarry color. The patient also complained of postprandial epigastric distress. She was placed on an ulcer regimen for each one of these episodes, with apparent improvement. Surgery was advised but refused. Blood findings during episodes were as low as hemoglobin 4 Gm. and red blood cells 1,728,000. Gastric analysis shortly after hemorrhage

revealed: Fasting, no free acid; one-half hour after alcohol, free acid 28 units, total acid 38 units. During normal interval: fasting, free acid 20 units, total acid 36 units; one hour after alcohol, free acid 35 units, total acid 89 units. The last admission was in 1940 for gastric surgery, the preoperative diagnosis being duodenal ulcer. Operation was performed by Dr. F. N. Zuck, who described the findings as a mass in the jejunum the size of a large plum, with an ulcerated area on its intraluminal surface. A large adjacent mass of infiltrated lymph nodes was present. The gallbladder was surrounded by dense fibrous adhesions which bound the gallbladder to the pylorus and first portion of the duodenum. Two large marble sized calculi were palpated. The stomach and duodenum appeared normal. The mass was resected and an end to end anastomosis was performed. Microscopic examination showed this tumor to be a carcinoid with infiltration into the adjacent lymph nodes (fig. 1).

The patient was readmitted to the hospital in 1942 because of gallbladder pain. A cholecystectomy was performed and many adhesions were found in the abdomen at the site of the previous operation. No evidence of recurrence or metastases was present.

This woman was seen over a period of eight years for repeated episodes of severe gastrointestinal bleeding with postprandial pains simulating those of peptic ulcer. The gastrointestinal series showed an inconstant irregularity in the duodenal cap. With such a syndrome plus the roentgenologic findings the most logical diagnosis seemed to be duodenal ulcer with repeated episodes of hemorrhage. The findings proved to be a carcinoid of the jejunum. The irregularity in the duodenal cap was caused by adhesions from the diseased gallbladder.

If a Levine tube had been passed during the acute episode of bleeding and had failed to reveal evidence of gross bleeding, the finger of suspicion might have moved away from duodenal ulcer. Close analysis of the postprandial pains did not show them to be typical. However, duodenal ulcers, especially in women, do not always provide typical symptoms. The other confusing element was the presence of gallbladder disease. Gastric analysis was not of value—it was low in the anemic period but high in the interval.

CASE 2.—R. G., a man aged 52, seen at the Strong Memorial and the Rochester Municipal hospitals in 1941, had had pulmonary tuberculosis, for which a left apical paraffin pack had been performed. The first admission to the Rochester Municipal Hospital was in November 1941. The patient's history was that of an ulcer since 1940 with two previous episodes of bleeding. He had definite postprandial pains relieved by food. Diagnosis at this time was duodenal ulcer with bleeding; old pulmonary tuberculosis. Blood examination revealed hemoglobin 5.5 Gm, red blood cells 1,810,000, white blood cells 9,600, nonprotein nitrogen 39 mg. per hundred cubic centimeters. The stools became negative for occult blood. The gastrointestinal series revealed the stomach and duodenal cap to be normal. The upper portion of the jejunum on the first roentgenologic examination showed a constricted area which suggested some type of lesion. This area was reexamined and the defect could not be demonstrated. On Jan. 21, 1942 a recheck gastrointestinal series revealed some narrowing of the duodenal cap, which was interpreted as probably a healed duodenal ulcer. The lesion previously seen in the small intestine was not noticed. On Feb. 13, 1943 the patient was readmitted to the Strong Memorial Hospital because of weakness and the presence of tarry stools. Pains were no longer relieved by food, and a 5 pound (2.3 Kg.) weight loss had occurred. The gastrointestinal series showed no lesion in the duodenum. Gastric analysis Feb. 20, 1943 revealed no free hydrochloric acid after alcohol. On this admission the diagnosis of duodenal ulcer was discarded and suspicion was directed to gastritis, Meckel's diverticulum or a lesion of the small

intestine. Symptoms simulating duodenal obstruction developed and the gastrointestinal series on March 25 revealed a filling defect in the upper jejunum just beyond the duodenojejunal flexure (fig. 2). This was present in the same location as previously noted in 1941. The impression now was an intrinsic lesion of the upper jejunum which might be carcinoma. Operation was performed by one of us (W. J. M. S.) on May 5. A mass the size of an orange which extended into the mesentery was present in the first part of the jejunum. This mass was firm and nodular and appeared malignant. The tumor with the adjacent jejunum and mesentery was removed and an end to end anastomosis was performed. Microscopic diagnosis was carcinoma of the jejunum with invasion of the lymph nodes (fig. 3). Symptoms of obstruction occurred in August, and exploration on September 14 revealed the jejunum to be rotated and twisted by an inoperable mass. The adhesions were divided, resulting in release of this partial obstruction



Fig. 2 (case 2).—Constricted area in the upper jejunum produced by the carcinoma.

This represents another instance of repeated episodes of gastrointestinal hemorrhage and postprandial pains simulating peptic ulcer. The patient had repeated hospital admissions over a period of two years because of the recurrence of massive bleeding, at which times he was treated medically for duodenal ulcer with bleeding. Eventually he developed symptoms of obstruction, which still could have fitted the picture of a duodenal ulcer which had become obstructed. A gastric analysis showed no free hydrochloric acid, and it was then realized that the man had some lesion other than duodenal ulcer. The final gastrointestinal series definitely showed a constricting lesion in the jejunum near the duodenojejunal flexure area, and the diagnosis was changed to possible carcinoma of the jejunum.

The original gastrointestinal series in 1941 showed some changes in the same part of the jejunum, which unfortunately was not demonstrable in a recheck roentgenologic examination. If at that time a gastric

analysis had been done it might have shown no free hydrochloric and might have made one aware that a peptic ulcer was not responsible for this syndrome. This might have led to an exploration at the first



Fig 3 (case 2).—Section of carcinoma of jejunum, reduced from a photomicrograph with a magnification of 100 diameters.

admission. Undoubtedly then there would have been a better chance for a cure. The use of a Levine tube during the bleeding episode, by failing to reveal gross blood, might also have turned the diagnosis away from duodenal ulcer.



Fig 4 (case 3).—Section of hemangioma of ileum, reduced from a photomicrograph with a magnification of 25 diameters.

CASE 3—J. F., a man aged 23, who entered the Strong Memorial Hospital on Jan 12, 1943, had had epigastric pains four or five weeks previous to admission; the exact relation

to meals was not noticed. Two weeks before admission the patient thought he had swallowed a small fragment of glass present in his food. The day before admission he suddenly passed reddish and then tarry stools following a hearty meal. He vomited once but did not notice any blood in the vomitus. He had repeated passage of reddish and tarry stools.

Physical examination showed that he was well developed and in mild shock. Hemoglobin was 8.9 Gm., red blood cells numbered 2,670,000, white blood cells 8,700, neutrophils 82 per cent, monocytes 8 per cent, lymphocytes 10 per cent. The provisional diagnosis was duodenal ulcer with hemorrhage or possibly a bleeding ulcer in a Meckel's diverticulum. The patient was put on hourly feedings of milk with a colloidal suspension of aluminum hydroxide. Bleeding episodes continued together with some epigastric pain, noncharacteristic in type. To assist in the differential diagnosis, a gastrointestinal series was given which showed a normal stomach and duodenal



Fig 5 (case 3).—Normal appearance of stomach and duodenal cap during episode of bleeding.

cap without evidence of any irritation or spasm (fig. 5). Because of the negative gastrointestinal series the inconclusive history and lack of definite blood in the vomitus, it was felt that the bleeding was not accounted for on the basis of a duodenal ulcer but more probably on the basis of an ulcer in a Meckel's diverticulum or an ulcerated lesion of the intestine below the duodenum. The patient continued to show evidence of blood loss in spite of repeated transfusions. His red count dropped to 1,730,000 red cells and hemoglobin to 6 Gm. The patient's prothrombin time was only 20 per cent greater than normal. His bleeding time was two minutes.

On January 23, eleven days after admission, an exploratory laparotomy was performed by one of us. His systolic blood pressure when he went to the operating room was down to 70 mm. After a large transfusion it came up to 94/60, at which time the operation was begun, while blood was given him continuously during the operation. When the abdomen was opened no gross lesion was found to account for the bleeding. The purple color of the intestinal contents could be seen in the colon and about one-half way up the small

intestine. After it had been found that the stomach and duodenum appeared normal both on inspection and on palpation and that a Meckel's diverticulum was not present, the intestine was examined inch by inch, beginning at the ileocecal valve and continuing upward to the ligament of Treitz. A nodule about 3 mm. in diameter was found in the antemesenteric border of the upper part of the ileum. A short distance above this point the purplish color of the intestinal contents stopped and the intestine showed its normal gross appearance. At first it was felt that the small nodule could be moved about 1 cm. up and down the intestine and that it probably was a polyp. At this time the musculature of the ileum was contracted. In a short time, however, the spasm of the musculature disappeared. The ileum became moderately distended and it was then seen that the nodule could not be moved. By picking up the nodule between the thumb and the first finger the lesion could be seen as a purplish spot in the mucous membrane through the thin muscular coat stretched out over the lesion. This area was excised by removing an elliptic longitudinal

seemed most likely that this represented a large vessel which had become thrombosed with later organization and canalization. Another possibility was a small hemangioma present which bled into the tissue and this blood later became organized. Overlying this there was a small ulceration, the base of which was formed by one side of this organized hemorrhage, which was infiltrated near the surface with many acute inflammatory cells. No ulceration was seen in the other bit of tissue. No evidence of malignancy was seen.

On going over these sections carefully, however, we were convinced that this lesion represented a very small hemangioma of the mucous membrane in the ileum with ulceration of its surface. The patient's postoperative course was excellent immediately after operation. He had no further bleeding after operation. The next day, however, he developed a postoperative parotitis, which subsided under x-ray treatment but was complicated by a suppurative cervical lymphadenitis which required incision and drainage. He left the hospital on Feb. 21, 1943 and has had no further bleeding and is well.

Lesions of Small Intestine Producing Massive Hemorrhage with Symptoms Simulating Peptic Ulcer

Case	Reported by	Year Reported	Sex	Age	Pathologic Findings	Roentgenologic Findings Suggesting Peptic Ulcer	Gastric Analysis	Duration of Symptoms	No. of Episodes of Massive Hemorrhage	Comment
1	Authors	1944	♀	47	Carcinoma of jejunum	Occasional irregularity of duodenal bulb	Fasting HCl Free, 0 Total, 8 After alcohol Free, 28 Total, 38	8 years	5	Cholelithiasis and gallbladder adherent to first part of duodenum
2	Authors	1944	♂	52	Carcinoma of jejunum	Negative usually; once suggestive of narrowing of cap	No free HCl after alcohol	3 years	4	
3	Authors	1944	♂	22	Hemangioma of ileum	Negative	Not done	4-5 weeks	Repeated episodes in 12 day period before operation	
4	Klingenstein ²	1938	♂	57	Benign leiomyoma of ileum	Prepyloric spasm; small and irritable duodenal bulb	Not reported	4 years	6	
5	Klingenstein ²	1938	♀	29	Benign neurofibroma of jejunum	Two examinations: slight but constant prepyloric constriction; 3d examination: negative	Not reported	Indigestion since childhood	3 in 2 years	Levine tube showed no blood; string test negative
6	Joyce	1934	♂	19	Benign leiomyoma of ileum	Negative	Not reported	3 weeks	1	
7	Dudley ¹	1934	♂	56	Hemangiomas throughout small intestine	Negative	Free HCl, 17.5 Total HCl, 57.6	24 years	1	
8	McKeen, R. H.: Colorado Med 29: 258, 1932	1932	♂	53	Meckel's diverticulum with bleeding and perforation	Persistent defect of duodenal cap	Not reported	21 days	1	
9	Mégevaud, E. C. and Dunant, Raoul Rev. de chir. 60: 536, 1922	1922	♂	32	Meckel's diverticulum with ulceration	Negative	Free HCl, 57	Since childhood	Numerous	

section about 1 cm. in length, going through all layers of the intestine. Bloody fluid, with several clots, was removed by suction from the lumen of the intestine. The lesion was revealed as a small elevation in the mucous membrane with a central ulceration about 2 mm. in diameter. Shreds of blood clot were attached to the base of the ulcer. Following the removal of the lesion the longitudinally placed incision was sewed up transversely. The only other operative findings that might be considered abnormal were. 1. There was a small purplish point seen in the small intestine a few inches above the first nodule. This also was removed. It was not ulcerated, however, and on section looked like a small lymphoid follicle. 2. The lymph glands in the mesentery of the ileum were moderately enlarged but soft. It was not felt that they were definitely pathologic, and probably this moderate hypertrophy was only due to the absorption of blood from the intestine.

In each of two microscopic sections (fig. 4) there was moderate evidence of acute and chronic inflammation in the submucosa and muscularis. In several of the recuts there was a small mass of fibrous tissue which on further sections seemed to be continuous with a fairly large blood vessel without good vessel wall, which was filled with a thrombus, most of which had undergone organization and recanalization. Many small capillaries and vessels were present in this region. It

This young man's episode was mainly one of gross melena with some pains four or five weeks before admission. Because he had been under mental strain, the most likely cause was thought to be peptic ulcer with hemorrhage resulting in rapid passage of blood through the intestine. However, the gastrointestinal series was negative and repeated episodes of passage of partially red and partially tarry stools pointed away from the duodenum and to the small intestine as the cause of bleeding. The lesions in the small intestine considered were Meckel's diverticulum with peptic ulceration or some other type of small intestinal ulceration. The lesion found suggested a hemangioma. This case was managed correctly, and surgery appeared to have prevented a mortality.

COMMENT

Our primary purpose in this paper is not to discuss the differential diagnosis of massive melena in the presence of pain or to describe the various symptoms that may occur in small intestinal lesions but to emphasize the fact that lesions of the jejunum or ileum may mimic bleeding peptic ulcers.

The table summarizes our 3 cases as well as 6 other cases reported in the literature that had been diagnosed as bleeding peptic ulcer and proved to have been lesions of the jejunum or ileum as the cause of these symptoms (i. e. massive melena and postprandial pains). We wish again to stress the combination of these two symptoms, not the one or the other alone. In 6 of these cases there were roentgenologic changes in the duodenal cap which further abetted the tendency to diagnose such situations as bleeding peptic ulcers and closed the consideration of causes other than duodenal ulcer.

These 9 cases had various lesions responsible for this syndrome. There were 2 cases of benign leiomyoma, 2 of Meckel's diverticulum, 2 of hemangioma, 1 each of carcinoid, benign neurofibroma and carcinoma. We feel that other types of pathologic changes in the jejunum or ileum may cause this syndrome. However, the lesions here described are the only ones we have encountered either in the literature or in our own experience.

The importance of differentiating lesions in the small intestine from a gastric or duodenal ulcer as a cause of these symptoms is obvious. The question of immediate or eventual surgery is so different in these two types of diseases that we must avail ourselves of all possible diagnostic procedures. The use of a barium meal during active hemorrhage is not contraindicated, provided the roentgenologist is aware of the situation and does not use palpation. Case 3 in our series demonstrates the importance of the barium meal in helping to rule out the stomach and duodenum as the cause of the symptoms. After such a negative roentgenologic examination a Levine tube can be passed safely. The absence of blood in the gastric contents will help to eliminate the stomach or duodenum as a source of the bleeding.

As a result of the analysis of our cases and of those occurring in the literature, the following suggestions have shaped themselves to help differentiate lesions of the jejunum and ileum from gastroduodenal ulcers as the cause of this combination of symptoms:

1. One should be aware that small intestinal lesions may produce this syndrome.
2. The pains present are not quite as typical as those of peptic ulcer.
3. Hematemesis is usually not present.
4. The gastrointestinal series is negative for a definite ulcer, although it may be suggestive of duodenal irritability or pyloric spasm.
5. The roentgenologic study of the small intestine may occasionally show a defect, a widened loop or retained barium.
6. A Levine tube passed during the episode of melena will not reveal gross blood. (This is done after the barium meal has ruled out a gastric or esophageal lesion.)
7. A gastric analysis may show low values for hydrochloric acid.
8. The presence of a palpable mass which slides away from the fingers may suggest a lesion of the small intestine.
9. Small intestinal lesions may be present in addition to a peptic ulcer.²

CONCLUSIONS

The possibility of a small intestinal lesion should be considered in any patient who has repeated or continuous melena in the absence of hematemesis and in

whom the pains seem somewhat atypical for peptic ulcer. Such patients should have diagnostic studies even during the active phase to help determine whether the bleeding is from the common source, peptic ulcer, or from the uncommon origin in the small intestine.

ABSTRACT OF DISCUSSION

DR. THOMAS E. JONES, Cleveland: I am sure that many of us have had cases of so-called unknown causes of gastrointestinal hemorrhage. They are unknown because they are not fully investigated by exploratory laparotomy. I have had many cases in the past six months that might be worthy of report. A child aged 2½ years had multiple exsanguinating hemorrhages for the past year. Gastrointestinal examination was negative by x-ray. On account of my past experience with these, I advised exploratory operation. This revealed a Meckel's diverticulum with ulceration and containing typical gastric mucosa. A child aged 5½ years had multiple exsanguinating hemorrhages from the age of 7 months. Repeated examinations were negative. Always the advice given was "Well, the child may outgrow it." Examination again was negative. I advised exploratory operation and this time found a reduplication of the small intestine. This was over a length of about 8 inches in the midileum. One side of this reduplication contained normal ileal mucosa. The opposite half contained typical duodenal and gastric mucosa which was ulcerated and bleeding. A man aged 27 with multiple hemorrhages for the past seventeen years had gastrointestinal symptoms diagnosed as duodenal ulcer, and even though the x-rays were negative he was always treated for a bleeding ulcer, which was considered the most likely diagnosis. X-rays again were negative. At operation 2 feet below the ligament of Treitz was an ulcerating leiomyoma 1 inch in diameter. This was the cause of that man's trouble for the past seventeen years. These lesions in the small intestine are difficult to demonstrate by x-ray examination. The literature is full of reports of exploratory laparotomies which have been done and nothing found for these so-called "unknown" causes; however, a review of them will show that the exploration generally is made through an upper right rectus incision, the stomach and duodenum are inspected and, if negative, the hand is placed in the abdomen and the remainder of the abdomen is palpated blindly. Obviously, many small lesions will be missed. If one is going to do an exploratory operation one must visualize and palpate every bit of the gastrointestinal tract from the esophagus down to the rectum. I would make a plea for early exploratory operation in all these cases of exsanguinating hemorrhage, even though the x-ray is constantly negative.

DR. STOCKTON KIMBALL, Buffalo: I want to corroborate Dr. Segal's findings and mention 1 patient recently observed who was of interest because he was discharged from the Army with a diagnosis of duodenal ulcer. He had some indefinite symptoms and a severe hemorrhage while in the Army. I had had, according to his report, three x-ray examinations, none of which showed any lesion. He came into our hospital with severe hemorrhage, all rectal, with no hematemesis. His stool wasn't tarry; it wasn't bright red; it was the color of ripe sweet cherries. X-rays during the active bleeding showed normal stomach and duodenum. Operation showed a Meckel's diverticulum. Meckel's diverticulum is less unusual than the lesions reported by Dr. Segal and his associates but is of interest in relation to the fact that this man was discharged from the Army on the basis of bleeding ulcer, which he did not have.

Arabic Medicine.—The Arabians alone tended the lamp of the intellect in Europe during the Middle Ages. Filtered across the Pyrenees from Spain, Arabic culture was a stimulating force. The introduction of arithmetic alone was exciting. (Arabic numerals made possible addition, subtraction, multiplication, division, which cannot be done with Roman numerals the Arabs also introduced zero), but Islam's influence in medicine was deep and lasting.—Clendening, Logan: *Source Book of Medical History*, New York, Paul B. Hoeber, Inc., 1942.

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RAPID DEVELOPMENT OF CARRIER
STATE AND DETECTION OF
POLIOMYELITIS VIRUSIN STOOL NINETEEN DAYS BEFORE ONSET
OF PARALYTIC DISEASE

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Well established is the fact that the virus of poliomyelitis may be demonstrated in the stools of a high percentage of cases of the disease and that in some it may be present for varying lengths of time up to several weeks¹ and even months² after the onset of clinical disease. Virus has been recovered from the oropharynx in approximately 50 per cent of the cases when swabs or washings were obtained within a few days of the onset of paralysis,³ but its detection in this site is uncommon after the fifth day of disease.⁴

Presumptive evidence of the harboring of the virus for a considerable period prior to the onset of disease has been advanced by Francis and his associates,⁵ who described 5 cases of poliomyelitis with three deaths following tonsillectomy in children probably carrying the virus.

Taylor and Amoss⁶ demonstrated virus in nasopharyngeal washings from 2 children during a family epidemic, and in 1 of them it was present five days prior to the onset of the disease. Pearson,⁷ in a study of contacts of a case, isolated virus from the stool of a child who developed fever, coryza and diarrhea eleven days following the stool collection. This was apparently an abortive case ending with an uneventful recovery.

The present report relates the discovery of virus in the stool of a boy nineteen days prior to the onset of paralytic poliomyelitis.

EPIDEMIOLOGIC INVESTIGATION

The Detroit Recreation Camp is situated about 5 miles northeast of Brighton, Mich. It is owned and operated by the city of Detroit for the benefit of underprivileged boys and girls. The camp is situated in rather open country on a small lake. The boys' camp is on one side, while that for the girls is situated on the opposite shore. There is little or no intermingling of the two sexes, except occasionally at the

small cabin serving as a camp office at one end of the lake. The boys and girls swim at the same place but at different times of the day. The boys' camp consists of approximately ten cabins, a mess hall, common wash room, toilet and office. The cabins, in each of which are quartered 6 to 10 boys, including an older boy as counselor, are spaced in a row near the lake. Back of the cabins runs a road, on the other side of which are situated the common washroom, toilet, lake pump, septic tank, tennis courts and baseball diamond. The camp is clean, the toilet facilities are adequate and well taken care of. Screening is rather uniformly carried out. The dining room and kitchen are clean and well run. During the period of study the weather was hot and dry. Few flies or mosquitoes were seen or trapped.

On June 27, 1944 the camp opened its regular season and boys arrived from Detroit on that date. In one cabin, designated the Lincoln Lodge, were housed 10 boys, all between the ages of 13 and 17, who had had no previous association with one another. They were Joe K., Robert G., Ken M., Louis G., Edward L., Bob M., Dave W., Irving L., Rex M. and Richard W., the counselor. One of these, Rex M., went home on the second day of camp and another, Irving L., left July 5. Neither had been sick. Since the investigation was not undertaken until July 9, further consideration of these 2 was deemed unnecessary. Only Dave W., Robert G. and Richard W. of this group remained at camp after July 11.

Joe K. arrived at camp on June 27 and appeared normal and lively for the first day or two. On the morning of July 2 he went to church but was "mopy" later and complained of a stomach ache. He slept all afternoon. On July 3 he was apathetic but still attempted to participate in games. In the evening he was admitted to the camp infirmary with abdominal pain, headache and fever. On July 4 stiffness in the back and neck were apparent, as was pain in both thighs. He was admitted to Herman Kiefer Hospital on July 5 with the diagnosis of poliomyelitis. On August 28 weakness of both arms and paralysis of both legs were still present.

On July 9 the camp was visited and a study undertaken. In addition to 51 stools and 57 throat washings from the boys in other cabins, stool and blood specimens were obtained on 6 of the 7 boys who lived with Joe K. during his six day stay at camp, and throat washings were collected from 4 of the 7. All specimens were promptly frozen with solidified carbon dioxide.

Two of these contacts had been slightly ill on July 4, following a picnic hike. Edward L., who had been climbing actively, felt very thirsty and vomited. Later that day he complained of dizziness and a headache. The following day he still felt weak and his legs were stiff.

Bob M. complained of headache and fever but stated that he was prone to headaches. On July 5 his temperature was 100.8 F. and headache persisted. On July 6 he felt perfectly well.

Richard W. had been well until July 21, when he participated in a boat race, using his arms for paddles. That evening he thought that his arms were weak. There apparently was a very gradual progression of weakness in the upper extremities until July 28, when he was admitted to Herman Kiefer Hospital with a temperature of 100 F., pulse rate 88, respiratory rate 22. Lumbar puncture at that time showed 4 cells, all lymphocytes. The spinal fluid sugar was 80 mg. per hundred cubic centimeters and the total protein 64 mg. per hun-

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From the Virus Laboratory, Department of Epidemiology, School of Public Health, University of Michigan.

Assistance and cooperation were received from Dr. Joseph G. Molner, deputy commissioner and medical director, City of Detroit Department of Health, and Dr. Franklin H. Top, medical director, Herman Kiefer Hospital, Detroit.

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dred cubic centimeters. The blood count showed 5,010,000 red blood cells, 100 per cent hemoglobin and 8,700 white blood cells, with 62 per cent polymorphonuclears, of which 54 per cent were filamented, 32 per cent lymphocytes and 6 per cent monocytes. On examination the neck showed moderate rigidity and the reflexes were hyperactive. The hands and arms were weak. He was given hot packs and physical therapy and on July 29 showed involvement of the right deltoid, right flexors of the fingers and extensors of the wrist. Weakness of the left arm had disappeared and there was improvement in the right shoulder girdle. On August 15 he was transferred to another hospital for further physical therapy. Throat washings and serum were obtained on July 29 and again a week later on August 7.

LABORATORY FINDINGS

(a) *Methods*.—Five of the 6 stool specimens from the boys in Lincoln Lodge were processed in the following manner: Five to 10 Gm. of stool was ground in a mortar with alundum and suspended in saline solution to make a concentration of 10 per cent. Low speed centrifugation was employed to clear the coarse particles, which were saved for intranasal inoculation. Ether to make 20 per cent by volume was added to the supernatant, and the specimens were shaken for one-half hour daily for six days. After exhaustion of the ether the material was centrifuged at 3,500 revolutions per minute for one-half hour and if bacteriologically sterile was retained for intraperitoneal inoculation. Usually 10 cc. of this material was recentrifuged in a small lusteroid tube at 3,500 revolutions per minute and used for intracerebral injection. All intraperitoneal and intracerebral specimens were adjusted to p_H 4.0 with hydrochloric acid before inoculation.

Rhesus monkeys were inoculated intracerebrally with 0.5 cc.; they were then given 10 cc. intraperitoneally and 2 cc. intranasally on the third day, another 0.5 cc. intracerebrally on the sixth day, and 10 cc. intraperitoneally and 2 cc. intranasally on the seventh or eighth day and again on the eleventh or twelfth day. Temperatures were taken at least once daily on all test animals.

The sixth stool specimen, Edward L., was made into a 10 per cent suspension in saline solution and given intranasally daily in 2 cc. quantities for ten days as suggested by Howe and Bodian.⁸

The throat washings were shaken for one-half hour on seven consecutive days with an excess of ether and after evaporation of the ether were inoculated in the same manner as the stool specimens except for the fact that the smaller quantities did not permit as many intraperitoneal inoculations.

(b) *Results*.—The specimen from Robert G. when inoculated into a rhesus monkey caused partial paralysis of the left leg and an extension tremor followed by definite weakness of the right leg. The diagnosis of poliomyelitis was confirmed by microscopic examination, which showed perivascular cuffing and leukocytic infiltration in both motor cortex and thalamus, infiltration of the pons and medulla, and pronounced cuffing, infiltration, neuronophagia and neuronolysis in the cervical, thoracic and lumbar regions of the spinal cord.

The monkey inoculated with the specimen of stool from David W. showed complete paralysis of both legs

in twelve days. The monkey receiving the stool specimen from Louis G. showed complete paralysis of both legs after fourteen days. In both instances microscopic examination revealed definite changes typical of poliomyelitis.

Two monkeys were inoculated intranasally with the Edward L. specimen. Both showed temperatures ranging from 104 to 106 F. and persisting for about ten days, shortly followed in one by moderate weakness of both arms and partial paralysis of the left leg. Microscopic sections showed extensive perivascular cuffing and leukocytic infiltration in the thalamus and to a moderate degree in the cortex and medulla, and extensive neuronophagia, neuronolysis, cuffing and infiltration in all levels of the cord, especially in the cervical region. The second monkey showed no paralysis but was killed, and microscopic examination revealed only slight perivascular cuffing in the cortex and no changes in the cord.

No virus was recovered from the stool specimen of Bob M.

No virus could be recovered from the throat washings of Robert G., David W., Bob M. or Ken M.

Inoculations of monkey 861 with a preparation of the stool specimen obtained from Richard W. on July 9 were begun on Nov. 13, 1944. Nine days later, on November 22, weakness of the animal's left arm was observed. This progressed, accompanied by ataxia. Weakness of the left leg was apparent on November 28. Further paralysis of the limbs did not develop, and by December 4 the monkey showed signs of improvement. It was killed, and microscopic examination revealed traces of leukocytic infiltration in the pons and some neuronophagia and neuronolysis in the medulla and the cervical region of the spinal cord. A suspension of the cord and medulla was inoculated into monkey 887 on December 7. This animal showed no rise of temperature or symptoms until December 23, sixteen days later, when it was apathetic and the hair ruffled. It was found dead in the cage the following morning and an autopsy was held. Microscopic examination showed typical changes characteristic of poliomyelitis, including perivascular cuffing and infiltration of the motor cortex, infiltration of the pons, cuffing in the thalamus and moderate neuronophagia and neuronolysis in both the cervical and the lumbar cord. Cytolysis was pronounced in the latter area.

Another suspension was made from the cord and medulla of monkey 861 and inoculated into monkey 899. This monkey showed no symptoms and was discarded after six weeks' observation.

The original stool specimen, which had been maintained in the frozen state, was again prepared for inoculation, and injection of monkey 896 started on Jan. 17, 1945. Nine days later, on January 25, the animal showed definite weakness of the left arm, was irritable and ataxic. It was killed January 29 and on section showed definite perivascular cuffing and infiltration of the motor cortex and moderate neuronophagia and cytotoxicity of neurons in the cervical cord. The cord and medulla of this monkey were passed to monkey 927, which remained well.

The two preparations from the original human stool had been retained in the ice box at 4 C. since Oct. 16, 1944 and Jan. 4, 1945 respectively. They were inoculated into monkeys 911 and 912 on February 7. Although both animals showed temperature elevations to 104 F., no other symptoms were apparent. They were killed two weeks after the temperature rise, and

⁸ Howe, H. A., and Bodian, D.: The Efficiency of Intranasal Inoculation as a Means of Recovering Poliomyelitis Virus from Stools, *Am. J. Hyg.* 40: 224, 1944.

microscopic examination revealed no changes characteristic of poliomyelitis.

Unfortunately no throat washings were obtained from Richard W. at the time of stool collection July 9, 1944, but fever and other symptoms were produced in monkey 898, which received washings taken on July 29, the day after the patient's admission to the hospital. The sections showed lesions typical of poliomyelitis. No virus was detected in throat washings collected one week later, August 7.

Monkeys were also inoculated individually with stools collected on July 9 from 10 boys 11 or 12 years of age in the nearest occupied cabin, two doors away, and from 2 boys who worked as "kitchen helpers." In none of these animals was evidence of illness observed.

COMMENT

An unusual opportunity has presented itself to determine not only the interval between exposure and the appearance of poliomyelitis virus in the stools of contacts but also to confirm the fact that virus may be present in the intestinal tract for some time before the onset of paralytic disease.

The probable interpretation of the results is that Joe K. arrived at camp in the incubatory stage of paralytic poliomyelitis, since the onset of his illness was five days after arrival. The occupants of the cabin had been brought together on June 27 for the first time; they were associated with Joe K. from that date until July 3. It is extremely doubtful that the brief illness of the two boys Edward L. and Bob M. on July 4 represented abortive poliomyelitis, since the incubation period would have been less than seven days. In addition, the stool of Bob M. was the only one from which virus was not recovered.

The recovery of poliomyelitis virus from the stools of 5 of 6 cabin mates collected on July 9 indicates that these boys had acquired the virus in the period of at most six days during which they were living with Joe K. This is supported by the negative tests for poliomyelitis virus in the stools of campers living in another cabin. It is apparent that multiplication of virus sufficient for the establishment of the intestinal carrier state is a very rapid process. Virus was not recovered from the throat washings of 2 of these boys at the time their stools were positive.

The second case of paralytic disease developed in 1 of the original 6 subjects nineteen days after collection of the stool specimen which was found to contain the virus. It is of interest to note that he was 1 of 3 from this group who remained at camp. No additional cases developed.

The detection of virus in this stool of Richard W. establishes the fact that virus may be present in the intestinal tract for some time before the onset of the paralytic disease. More than the usual precautions were taken to verify this finding. The original stool was processed twice and each time caused typical symptoms in monkeys. Diagnosis was corroborated by microscopic examination, which showed characteristic if not extensive involvement of the nervous tissue. In addition, passage of the cord and medulla invoked the disease, also verified by microscopic examination, in 1 of 3 monkeys. The fact that 4 other boys exposed for exactly the same period likewise had virus in their stools adds materially to the evaluation of the findings.

It is of interest that virus was recovered from the patient's throat washings on the day after hospitaliza-

tion but not from washings one week later. This is in close agreement with the findings of others.³ It may be that the presence of virus in the nasopharynx is associated only with the acute phase of the disease, while the intestinal tract is a potent source of virus before, during and for some time after the onset of clinically diagnosed poliomyelitis.

MERCURY POISONING IN TUNGSTEN-MOLYBDENUM ROD AND WIRE MANUFACTURING INDUSTRY

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In the United States at present there are five or six establishments which manufacture the bulk of tungsten, molybdenum and tungsten-molybdenum combinations used for electrical contacts and filaments in the great and diversified electrical and radio industries of the nation. In addition to these special plants the large electrical manufacturing concerns have departments which process these metallic products and serve as auxiliary sources of supply. This industry is relatively young and, since the pure metals used in the fabrication of rod and wire are not apparently toxic, it has aroused but little interest from the standpoint of industrial health. However, the processing of tungsten and molybdenum involves the use of metallic mercury and introduces the hazard of exposure to the toxic vapors of that metal.

In order to appreciate the mechanism for development of mercurialism among workmen employed in this industry it is necessary to have some knowledge of metal treating methods used. The ultimate product—contact, filament, wire or rod—may be fabricated from pure tungsten, from pure molybdenum or from various mixtures of the two metals. Usually the tungsten is manufactured in the plant by derivation from sodium, potassium or calcium tungstate. The molybdenum is made from ammonium molybdate and molybdenum trioxide. This phase of the industry also involves exposure to toxic dusts and vapors, but the incidence of illness is low and that problem will not be elaborated on here. After the pure powdered metals are obtained and sieved the first process is one of mechanical compression into rods of various sizes from 16 to 24 inches long and $\frac{3}{8}$ to 1 inch in square cross section. Further processing depends on whether the product is intended for electrical contacts, filaments, radio tube heaters, electrodes, x-ray targets or other types of equipment. For all of these products, however, the rods must be heat treated in order that the metal may be worked hot and drawn. Since true amalgamation is not possible, close molecular aggregation is achieved by intense heat, which is produced by passage through the rods of a low voltage high amperage current in an atmosphere of hydrogen.

Heat treatment is carried out in a separate department which houses a series of treating bottles. The apparatus¹ consists of a stand with a flat top over which a metal bell (or bottle) resembling a spirometer

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1. Smithell, Colin J.: *Tungsten: A Treatise on Its Metallurgy, Properties and Applications*, ed. 2, New York, D. Van Nostrand Company, Inc., 1936.

bell is supported and counterbalanced by weights. In the top of the stand there is a central depression which, when filled with metallic mercury, serves as an electrical contact, and, on the outer margin, a ring depression or groove into which the open end of the bell may be lowered. The groove is also filled with mercury to form a gas tight seal. Within the bell and supported on the stand there is an upright bracket with a clamp into which the upper pole of the rod is fastened. A spring clamp is attached to the lower pole and it in turn rests freely in the central cup of mercury. The mercury thus forms a contact for passage of electric current while providing a liquid medium for mobility of the lower electrode during shrinkage of the rod. After the rod is placed and contact is made the bell or "bottle" is lowered until its rim fits into the mercury filled groove. Hydrogen gas is then admitted to the sealed chamber displacing the air, current is allowed to flow through the rod and heat treatment proceeds for a length of time determined by the composition of the rod and its intended use. The high temperature causes cohesion of the metal particles, which, after cooling, leave a brittle rod which becomes malleable when heated and can thus be worked into wire.

The treating process just described introduces the hazard of mercurialism. Forging and swaging required for manufacture of the final product do not involve industrial health problems and will not be described in detail. The rods, which are rectangular in cross section, are forged into round cylinders of varying diameters by means of swaging. Rods of large cross section are heated in a hydrogen atmosphere and pushed through an automatic hammering apparatus called a swaging machine. Rods of smaller cross section are worked in a swaging machine, which is a combined gas furnace and automatic forge. While heated by an encircling gas flame the rod is hammered by radially arranged hammers until it is forged into smaller cylindrical shapes. The rods are then drawn to wire or cut in various lengths.

The amount of mercury used and the extent of health hazard in this industry depend on many variable factors, such as the number of treating bottles, devices for the prevention of spillage and collection of waste mercury, the experience and caution of the workmen, ventilation, composition of the floors and temperature of the workroom. However, it is well known that exposure to seemingly small or laboratory quantities of mercury may cause toxicity to workmen.² Chronic poisoning may not occur except after many years. The experience of the hatting industry illustrates how insidiously prolonged absorption of minute amounts of mercury may undermine health and cause invalidism or death.

Mercurialism was one of the earliest recognized industrial diseases. According to Neal³ mercury was known in India in 500 B. C., and mercury stomatitis from its medicinal use was described during the first century A. D. References to mercurialism were made by Paracelsus (1567) in "Of Miners' Consumption and Other Miners' Diseases."⁴ In 1713 Ramazzini⁵ quoted

the opinions of numerous authorities and lent his descriptive powers to vivid accounts of the symptoms of mercurialism, writing in the chapter on diseases of miners "But it is from mercury mines that there issues the most cruel bane of all that deal death and destruction to Miners. Fallopio in his treatise 'Metals and other minerals' says that mercury miners can hold out for barely three years; Ettmüller in the chapter on mercury in his *Mineralogia* says that within four months they become subject to the palsy of the limbs (tremors), paralytic, and suffer from vertigo and this is caused by the mercurial spirits, which are particularly injurious to the nerves." Concerning gilders, Ramazzini says "We all know what terrible maladies are contracted from mercury by goldsmiths, especially by those employed in gilding silver and copper objects. This work cannot be done without the use of amalgam, and when they later drive off the mercury by fire they cannot avoid receiving the poisonous fumes into their mouths even though they turn away their faces. . . . Very few of them reach old age, and even when they do not die young their health is so terribly undermined they pray for death. Palsy of the neck and hands, loss of teeth, uncertain gait, and scelotyrbe, all these are assigned to them by Jüngken in his 'Experimental Chemistry.'" Olaus Borch is quoted from the "Medical Transactions of Copenhagen" regarding the case of a gilder stricken with mercurialism. "The distinguished author," say Ramazzini, "thinks that the palsy was caused by the impact on the nerves of the smallest possible atoms of steaming mercury (*corpuscula fumantis Mercuri minutissima*) and that directly these were taken into the blood mass they hindered its proper flow."

The uses of mercury have increased progressively during the era of industrialization and the hazard of mercurialism is no longer limited to the miner and the gilder. In their compilation of occupational hazards in 1933 Dublin and Vane⁶ listed eighty industries which use mercury in potentially harmful amounts. Among these industries are cinnabar mining and smelting, the fur felt and hatting trades (where the fortunate discovery of new carotting agents is eliminating the use of mercury nitrate in the treating of fur), the manufacture of Edison cell storage batteries, calibration of apparatus in the glass industry, manufacture of mercury fulminate in the explosives industry, reclaiming of precious metals from dental waste, installation of mercury boilers and vapor turbines, as well as many laboratory procedures in almost every conceivable field of science. So far as I know, however, there has been no prior report of mercury poisoning resulting from the manufacture of tungsten and molybdenum rod and wire.

In one of the large plants in which most of the following observations were made, the metal treating department was originally housed in an open shedlike structure and consisted of only three or four treating bottles. During several years of small scale operation no instances of mercurialism were observed and the hazard was not suspected. In 1938 the treating department was expanded and the apparatus was set up in a corner of the plant. The floor was wooden, no precaution was taken to collect spilled mercury, ventilation was poor and no attempt was made to provide fume hoods or forced draft. On Nov. 14, 1939 the first recognized case of mercurialism was referred for exami-

2. Turner, J. A.: A Report of Poisoning from Small Quantities of Mercurial Vapor, *Pub. Health Rep.* 39:329-341 (Feb. 22) 1924. Shepherd, Schukman, Flinn, Hough and Neal.³

3. Neal, P. A.: Mercury Poisoning from the Public Health Viewpoint, *Am. J. Pub. Health* 28:907-915 (Aug.) 1938.

4. Koelsch, Franz.: Theophrastus von Hohenheim genannt Paracelsus: "Von der Bergsucht und andere Bergkrankheiten," *Schrift. a. d. ges. d. Gewerbehyg.* 1925, No. 12.

5. Ramazzini, Bernardino: Diseases of Workers, *The Latin Text of De Morbus Artificum*, Latin text of 1713, revised, with translation and notes by Wilmer Cave Wright, Chicago, University of Chicago Press, 1940: Miners, p. 21; Gilders, pp. 33-35.

6. Dublin, L. I., and Vane, R. J.: Occupation Hazards and Distant Signs, *Bulletin* 582, U. S. Dept. of Labor, Bureau of Labor Statistics, 1933, p. 49.

nation. Because of the symptomatology presented an inspection of the plant was undertaken and engineering consultation was requested. It was discovered that mercury was allowed to remain in puddles on the floor under the treating apparatus, that the metal had seeped through the floor and was dripping from the beams into a lavatory on a lower level and that in the use of the equipment no attempt was made to reduce the splashing of mercury droplets from the electrode cup or bottle seal. On occasions the waste mercury was swept up and discarded, but that which was in relatively inaccessible places was allowed to remain.

During the period from 1939 to 1944 a considerable number of cases of acute and chronic mercurialism were found among employees in the plant just described and in another somewhat smaller establishment. Only 2 clearcut cases were encountered from the smaller plant, both of which presented the typical findings of advanced chronic mercury poisoning (compare case 2) in workmen who had been continuously employed for seven years. The smaller plant exercised fair control and housed the treating bottles over a concrete floor in a large open room well ventilated by adjacent windows except during inclement weather. Even here, however, spillage was considerable and there was no provision for exhausting the treating equipment.

In order to diminish the obvious hazard in the plant where the first case of mercurialism was encountered, an engineering program was proposed. This was to have involved replacement of the wooden floor with metal plate, construction of a tilted single table top for all the treating bottles, which would prevent spillage and permit collection of waste mercury, housing of the apparatus within a closed hood, which would be forcibly exhausted and ventilated separately from the areaway from which the workmen were to control and load the treating equipment, and so on. This plan was modified to an extent which ultimately proved almost disastrous: the mercury saturated flooring was covered with a composition material, a few minor changes were made to collect spilled mercury, and the treating room which was closed off by partitions was air conditioned as a unit. Following the engineering foray the incidence of mercurialism rose sharply, for obvious reasons. The forced circulation of air throughout the department increased the vaporization of mercury, subjecting the workmen to an even greater exposure than existed before air conditioning the room. Concurrently the demand for increased production resulted in continuous operation for at least two and frequently three eight hour shifts daily.

Ultimately, many of the originally recommended protective measures were carried out, but despite installation of hoods and separate ventilation of the working area sporadic cases of mercurialism continued to occur. Morbidity was diminished by establishment of a medical program of preemployment examinations and periodic inspection, but the hazard of chronic mercurialism was effectually diminished only by the rapid labor turnover and the brief tenure of most of the employees. Improvements in the sanitary engineering of the plant were carried out during a period of rapid expansion and high productivity. As a consequence cases of mercurial stomatitis were found to occur within four weeks after employment, and 1 employee developed the condition after working in the department only a few days. In this instance a sheet metal worker installing

new exhaust apparatus had to cut through flooring impregnated with mercury and frequently swept up puddles of mercury with the sawdust and debris on the floor. On one occasion some mercury laden dust was accidentally swept directly into his face as he worked under the treating room floor. He presented a full blown gingivitis and associated systemic toxicity within a week after initial exposure.

The frequency of mercury poisoning in this industry is determined by a great many factors aside from the precautionary measures undertaken by the plants and the resulting degree of vapor concentration in the workroom atmosphere. When the production level is low, the incidence of mercurialism tends to fall. Similarly, when labor turnover is rapid there is little opportunity for development of subacute or chronic intoxication. However, the combination of failure of sanitary measures and high productivity has resulted in minor epidemics of acute intoxication, some of which have resulted in serious morbidity. One patient developed a spreading infection from suppurative gingivitis, which involved a preauricular lymph node and lighted up an old mastoiditis the spread of which extended to the auriculotemporal joint, the facial canal and parotid region. Cure was accomplished only after radical mastoidectomy, partial dental extraction, secondary incision and drainage and intensive local and parenteral administration of penicillin.

Case histories of chronic and subacute mercurialism are presented in order to illustrate the characteristic but variable symptomatology. The diagnosis is established when the clinical findings are correlated with a history of exposure, and it may be supported by the finding of mercury in the urine (in the absence of recent mercurial medication) or the demonstration of a toxic level of mercury in the occupational environment. Aside from the typical cases, problems involving difficult differential diagnoses were frequently encountered. One patient with gastrointestinal complaints, anorexia and vomiting was found to have trichinosis; another who complained of progressive weakness and loss of weight had pulmonary tuberculosis. One patient with questionable mercurial stomatitis had a demonstrable peptic ulcer. The importance of critical evaluation of symptoms and careful study of each case is emphasized because of the danger of assuming that every sick workman in an industry of known hazard is suffering from the effects of toxic exposure. In this particular field the finding of mercury in the excreta must not be permitted to mislead the diagnostician, since mercury is present in the urine of most of the subjects tested regardless of symptoms or the presence of intercurrent disease.

CASE 1.—Chronic mercurialism. A. B., a white man aged 25, on Oct. 28, 1941 reported for examination because of tremor of the hands, pain and numbness of the upper extremities and painful gums. He had been employed in the treating department for five months. He was not previously exposed to mercury and his industrial history was negative aside from employment as an anthracite miner for three years. The past history was noncontributory and the family history was negative. About a week prior to examination he noted soreness of his gums and for four days complained of slight headache. His appetite was poor. He had lost about 23 pounds (10 Kg.) during five months. Aside from loss of weight and anorexia there were no acute symptoms until Oct. 23, 1941, when the patient suddenly developed tremor of the hands while at work. It was necessary for another employee to help him place the

electrodes in the treating bottles because his hands shook so much that he was unable to carry on.

The patient on physical examination appeared asthenic. He weighed 129½ pounds (58.7 Kg.) and was 68¾ inches (175 cm.) tall. His best prior weight was 150 pounds (68 Kg.). The blood pressure was 116 systolic and 82 diastolic. The temperature and pulse were normal. He appeared somewhat undernourished and generally under par. There were many missing and several carious teeth. Dental occlusion was poor. The gums were hypertrophied and locally receded. A bluish line was present in the gum tissue about the upper and lower central teeth and in the upper left molar region. Pressure on the gum tissue caused bleeding and exudation from the gingival crevice. There were no significant findings referable to the neck, lungs, heart or abdomen. The genitalia and extremities were normal. Fluoroscopy revealed increased linear markings extending toward the apex from the right hilus.

There were no gross psychiatric abnormalities. Romberg's sign was negative. The gait was synergic and free, and there was no dysmetria or nystagmus. The sensory system was intact for all modalities. There was no disturbance of motor power, but coarse tremors were noted involving the outstretched fingers and the muscles of the upper extremities. There was a definite intention quality to the tremor, as indicated by the finger-to-nose and related tests. The handwriting showed a somewhat rhythmic irregularity of the script, particularly pronounced when attempting to write slowly. In the drawing of straight and curved lines irregular and progressive tremulousness was noted.

The cranial nerves were normal. The superficial reflexes exhausted readily. The deep reflexes were generally hyperactive, particularly those of the lower extremities. There were no pathologic reflexes.

The blood count was normal. There were 4.84 million erythrocytes. The hemoglobin (Sahli) was 13.8 Gm. and the leukocytes numbered 5,300. The differential count was normal and no stippling or other abnormality of the erythrocytes was observed. The sedimentation rate (Westergren) was 2 mm. per hour. The Kahn and Hinton tests were negative. The urinalysis revealed a specific gravity of 1.017, no albumin or sugar. The microscopic examination was negative. Examination of the urine for mercury by the dithizone method revealed a trace of the metal.

Dental consultation confirmed the diagnosis of mercurial gingivitis, although roentgenograms of the teeth failed to reveal much alveolar destruction. Under observation and treatment, which terminated on Nov. 19, 1941, there was progressive diminution of tremor, improvement of gingival tone and gain of weight.

CASE 2.—Chronic mercurialism. A. H., a white man aged 59, on Jan. 27, 1943 was hospitalized because of weakness, tremor and painful gums. He was employed in the treating department for approximately eight years, and worked continuously until Jan. 23, 1943. The plant where he was employed was ventilated only by means of windows situated behind the row of treating bottles, and during the winter the windows were opened only in mild weather. Early in 1942 the patient first noted soreness and dryness of the throat, and somewhat later he began to complain of periodic gastric distress. Ten months prior to examination he first became aware of tremor. His family physician was unable to find any physical abnormalities. Soreness of the mouth became progressively worse, but the diagnosis remained obscure. The past medical and family history were noncontributory. There was no history of alcoholism. The systemic review was negative.

On Feb. 10, 1943 physical examination revealed that the patient was well muscled, weighed 145 pounds (66 Kg.) and was 66 inches (168 cm.) tall. The blood pressure was 114 systolic and 76 diastolic. The temperature and pulse were normal. Both eyes showed immature cataracts. Hearing was slightly impaired. There were a few missing teeth. Dental occlusion was poor. There was moderate recession of the lower anterior gums and a faint gray line along the margin

of the receded tissue. The gums did not bleed easily on traumatization. The tonsils were of moderate size, not inflamed. The lung fields were clear. The cardiac examination was negative. The liver margin was palpable 1 fingerbreadth below the costal margin. The abdomen was otherwise normal. The genitalia and extremities were normal. The peripheral arteries were not unduly thickened.

The patient was of good intelligence and there were no psychiatric abnormalities except tension and anxiety. There was no disturbance of gait or station. There was a very noticeable intention tremor in the finger-to-nose test, and there were coarse tremors of the outstretched hands of intention type and of variable amplitude. During the course of observation and on attempted performance of purposive acts the tremor became much more pronounced and spread to involve almost all the muscles of the neck and trunk. There was no motor weakness. The cranial nerves were normal. The deep reflexes of the upper extremities were hypoactive, while those of the lower extremities were somewhat hyperactive. There was abortive clonus at the Achilles and patellar tendons. There was an equivocal Babinski reflex on the left and a positive Babinski reflex on the right.

The laboratory findings were essentially negative. There was no anemia. The leukocytes numbered 13,400 per cubic millimeter and there was a slight shift to the left. The sedimentation rate was 7 mm. per hour. The Kahn and Hinton reactions were negative. The blood sugar was 106 mg. per hundred cubic centimeters. Urinalysis revealed a specific gravity of 1.014, no albumin or sugar, and an occasional hyaline and coarse granular cast. Examination of the urine for mercury by the dithizone method gave a negative reaction. (At the time of examination the patient was hospitalized and had not been exposed to mercury for several weeks.)

The patient was reexamined on March 18, 1943, at which time he presented a similar but somewhat less pronounced tremor. There was no change in the physical findings. The handwriting at that time showed pronounced tremor, and the signature was illegible. In the drawing of straight and curved lines there was progressive and decided irregularity.

Another workman examined at the same time whose industrial exposure was identical also presented the characteristic neurologic findings of advanced mercurialism.

CASE 3.—Acute mercurial stomatitis. L. P., a man aged 42, Filipino, was referred for examination on Sept. 2, 1943 because of painful bleeding gums and excessive salivation. A musician until 1943, the patient was employed in the treating department for approximately six months. The family and past histories were negative except for gonorrhea in 1923. About two and one-half weeks prior to examination he first noted excessive salivation and a bad taste in the mouth. Subsequently his gums became painful and swollen and bled freely when the teeth were brushed. He informed the examiner that twenty-six metal treating bottles were in operation in the plant where he was employed and that twenty-four of them were in use continuously twenty-four hours daily.

Physical examination revealed that the patient was asthenic but well muscled. He weighed 112½ pounds (51 Kg.) and was 61¾ inches (157.5 cm.) tall. The blood pressure was 114 systolic and 66 diastolic. The temperature and pulse were normal. There was fetor oris. The teeth were in poor repair; many were missing and there were advanced caries, sordes and drifting of the remaining teeth. The gums were spongy and inflamed. There was a very faint dark discoloration along the gingival margin. In the submaxillary region there were tender enlarged lymph nodes. The neck was otherwise normal. The lungs were clear. The heart was negative to physical examination and fluoroscopy. The abdomen, genitalia and extremities were normal.

Neurologic examination was entirely negative. There was no disturbance of gait, station, coordination or sensory function. There were no tremors of the outstretched hands. Motor power

was normal. The cranial nerves were normal and the reflexes were physiologic.

A complete blood count was negative. There was no leukocytosis. The sedimentation rate was 26 mm. per hour (Westergren). The Kahn, Hinton and Mazzini tests were negative. The blood sugar (nonfasting) was 142 mg. per hundred cubic centimeters and the urea nitrogen was 11 mg. per hundred cubic centimeters. A smear from the gingival exudate revealed a large number of fusospirochetes and blood cells by dark field microscopy. The urine showed no mercury by the dithizone test. Routine urinalysis was negative. Roentgenograms of the mouth showed alveolar resorption.

The diagnosis was mercury poisoning, subacute, with mercurial gingivitis.

DIAGNOSIS

Mercury may enter the body as inhaled vapor, by ingestion of metallic particles or through the skin. Poisoning by the metal must not be confused with acute administration of mercurial salts, the effect of which is similar only in respect to the stomatitis which may develop during convalescence. Soluble mercurial salts are violent corrosive agents and are extremely nephrotoxic. Metallic mercury has neither of these properties, and renal disease is not characteristic of either acute or chronic mercurialism of industrial origin. Occupational mercurialism may develop acutely or subacutely following exposure to metallic mercury in a liquid or vapor state. More gradual exposure may result in chronic mercurialism without the development of signs of subacute intoxication. The clinical syndromes of acute and chronic mercurialism are fundamentally different, since the manifestations of the former are due to involvement of the gastrointestinal tract, while those of the latter are almost entirely of central nervous system origin.

Acute mercurialism may be suspected when there is a history of exposure to metallic mercury even in minute quantities and the patient presents an acute spongy gingivitis, an ulcerative stomatitis or, occasionally, colitis. The presence of a dark line on the gums is characteristic but not uniformly present. In differentiating the various types of stomatitis it is, of course, important to rule out recent administration of bismuth or of mercury and to exclude agranulocytosis and other diseases by routine laboratory tests. Lead poisoning is not usually a problem, since the blue gray line of plumbism is fairly distinctive and is not commonly associated with gingivitis. The presence of fusospirochetes must not confuse the issue, since these organisms commonly invade damaged gingival tissue and are present uniformly and in large numbers in mercurial stomatitis or gingivitis.

Aside from stomatitis the patient may complain of anorexia, weakness and digestive disorder. Ordinarily there are no tremors or other neurologic manifestations. Laboratory aids are of little help. The blood count is usually normal, although leukocytosis may result from the oral infection. If the urine is examined during or shortly after the period of exposure, metallic mercury will usually be found. It is essential that the test be done by an experienced toxicologist, and the method preferred is the test with dithizone.⁷ The presence of mercury in the urine is proof of exposure to mercury. It does not indicate whether mercury has been inhaled as a vapor or ingested as metal or salt and is not diagnostic of mercury poisoning.

Subacute mercurialism is usually suspected when workmen with known exposure present symptoms of general ill health. Usually the diagnosis is made by exclusion, and frequently in suspected cases nonindustrial disease is discovered. It is in this type of case that critical and thorough study is particularly necessary. The diagnosis is made when findings of chronic gingivitis, alveolar resorption and salivation are associated with anorexia, weight loss, asthenia and occasionally pallor, slight anemia and nervous irritability.

The most characteristic clinical syndrome is that resulting from prolonged exposure to very low concentrations of mercury. Chronic mercurialism is a disease of the nervous system and its manifestations are much the same whether the poisoning occurs among miners, hatters or metal treaters. The time required for development of the full blown syndrome varies with the exposure. The miner or smelter of cinnabar may come down with violent "shakes" within a year and at the same time may present a necrotic gingivitis. Usually it requires fifteen to thirty years' employment as a hatter to produce a similar syndrome, and signs of local mucosal disease may be entirely wanting. Tremor, known to all trades as the "shakes," is the most characteristic symptom. This tremor may be of variable intensity and there may be a constantly present fine component, but its most distinctive quality is that of intensification by attention or intention. It resembles the tremor of parkinsonism at times but differs in that the latter diminishes with intention while the mercurial tremor may evolve into sweepy jerky movements. It is much more pronounced than the intention tremor of disseminated sclerosis and is reinforced not only by intentional movements but also by the attention of the examiner, by emotional tension and by non-purposive acts. Early in the disease habitual actions may be performed by the involved extremity, but later even these are impaired by tremor. The tremor of chronic mercurialism can best be demonstrated even early in the disease by testing the ability of the workman to draw straight and curved lines and by observing the handwriting. It is important not only to study the results of these tests but to watch the actual performance. In some cases it is important to rule out malingering, especially since most cases involve the question of compensation. The tremor usually manifests itself as a progressive irregularity of line, sometimes violent at the end. The handwriting tends to become less legible, and frequently the subject will give up the attempt to write more than two or three words. Micrographia has been observed but is not characteristic.

In addition to tremor there are frequently complaints of muscle pain or tension. Right handed workmen usually suffer pain about the right shoulder, and the musculature of the region may be somewhat indurated and tender. Muscle cramps may occur, especially at night. Irritability, unexplained depression, even confusion may occur, but these signs of so-called mercurial erythism are not usually present except in advanced cases. Since most patients with advanced chronic mercurialism are middle aged or older, it is the rule to find associated systemic disease or manifestations of arteriosclerosis. Frequently it is impossible to determine whether the wide variety of symptoms is due to the intoxication or to coexisting somatic deterioration. There is no reliable basis for concluding that

⁷ Gtettler, A. O., and Lehman, R. A.: Simplified Procedure for Determination of Mercury, *Am. J. Clin. Path., Tech. Supp.* 2: 161 (Sept.) 1938.

mercurialism may aggravate arteriosclerosis, and frequently insuperable problems result when typical senile paralysis agitans develops in workmen long exposed to mercurialism. Since the problem is frequently medicolegal as well as medical, such issues are usually and properly resolved in favor of the disabled workman.

HYGIENE

In order to prevent toxic mercurial exposure in industry, the first requirement is a healthy respect for the dangerous properties of quicksilver. Since it is a liquid, mercury can seep into crevices, penetrate wooden floors, collect in interstices, mix with dust or amalgamate with solid metals. Wherever it collects, mercury vaporizes at room temperature and in the course of time potentially hazardous concentrations in the atmosphere may result from seemingly negligible spillage. Therefore, careful engineering and good housekeeping are the first essentials of plant hygiene. Whenever possible the metal should be used in closed procedures, and safety devices should be available in case of breakage or spillage. When used openly as in the heat treating of metals, the equipment should be so designed as to limit splash to a minimum, to insure collection of all droplets by an efficient gravity method and to avoid spaces and corners where puddles may accumulate. Ventilation is a difficult problem, and the error of forcibly ventilating open rooms containing mercury must be avoided. Exhausts should be placed so as to draw off the air from the apparatus where mercury is used, and the work space should be supplied with fresh air from an outside source. Wooden construction should be avoided, and flooring of concrete or composition materials should be maintained without cracks or open interstices. All apparatus should be simple in external construction and as far as possible free of needless angles or compartments. Isolating exposed mercury within exhaust hoods is to be recommended, provided the effectiveness of the exhaust system is frequently checked and the apparent safeguard is not allowed to contribute to carelessness. It is a common experience to find pools of mercury within hoods or on the floors after removal of guard plates.

According to Shepherd and his associates⁸ the toxic limit of mercury is 0.1 mg. per cubic meter of air. This is equivalent to approximately 1 part to 50,000,000 by volume. Apparatus is now available at low cost which is said to have a sensitivity of 0.082 mg. of mercury per cubic meter of air.⁹ Since there are not yet sufficient data to assure the safety of even 0.1 mg. per cubic meter over long periods of time, even more sensitive equipment may be desirable in order to check the effectiveness of engineering control. The General Electric instantaneous vapor detector¹⁰ is said to be sensitive to less than 1 part of mercury per billion by volume. In the use of the more sensitive instrument, however, caution must be exercised to exclude ozone and illuminating gas from the atmosphere tested, since similar effects to that of mercury are produced in the ultraviolet spectrum.

Aside from plant hygiene, close medical supervision of workmen and selective employment should form part of the control program. Preemployment examination

should screen out all candidates with chronic disease and dental abnormalities which might facilitate development of stomatitis. Radiography of the lungs should be routine. Dental examination should include radiography in doubtful cases, and all applicants with chronic gingivitis, deep gingival pockets, pronounced malocclusion and extensive uncorrected caries should be rejected. A general recheck should be made every month, and any workers showing evidence of swelling of the gums or complaining of sore mouth or salivation should be referred for dental examination. Neurologic examination should include tests for tremor, including a handwriting test. It is well to have a card with a faintly demarcated circle about 2 inches in diameter and crossed or angular lines about 3 inches long. The subject tested should be asked to trace the lines with uninterrupted strokes of the pencil and to write a standard test sentence dictated by the examiner. As far as chronic mercurialism is concerned, the handwriting test is the most valuable single means of early detection.

Personnel should be instructed in precautions necessary to prevent absorption of mercury. Facilities for washing and for showers after the work shift should be provided. Separate lockers should be provided for work clothes and for street clothes, and work clothes should be changed twice weekly. Clean lunch rooms should be provided, and food should not be permitted in the workrooms. Oral hygiene should be promoted and adequate dental care assured by periodic examination by the plant dentist.

TREATMENT

Acute industrial mercurialism is almost wholly a dental problem. In exceptional cases the systemic symptoms are sufficiently severe to warrant active medical care or even hospitalization. In such cases the judicious use of saline laxatives, high caloric soft diet and administration of sodium thiosulfate intravenously are usually the only measures required. Dental treatment should be directed to eradication of the associated fusospirochetal infection by means of any of the accepted agents. At times alveolar resorption may cause the loss of teeth. Complications arising from extension of infection may require chemotherapeutic or even extensive surgical measures.

Early chronic mercurialism frequently responds favorably to removal from exposure and ordinary medical supervision: sedation, nutritious diet, vitamin supplements, physical therapy. Sodium thiosulfate intravenously is a traditional remedy in mercurial and arsenical poisoning, but its effectiveness is difficult to evaluate and I have not been convinced of its usefulness.

Advanced involvement of the nervous system resulting in well established tremor, muscular tension and early psychologic change is extremely resistant to treatment in most cases. In some instances the symptoms subside spontaneously, but most of the time the tremor becomes fixed or progressive and a high degree of invalidism results. In the course of time many of these patients suffer total disability. In the group of cases referred to serious disability remained in the 2 advanced cases of nervous system disorder despite a long period of hospitalization and medical care.

SUMMARY

A specialized manufacturing industry is responsible for the supply of much of the tungsten, molybdenum and tungsten-molybdenum wire and rod used in the elec-

8. Shepherd, M.; Schukman, S.; Flinn, R. H.; Hough, A. W., and Neal, P. A.: Hazards of Mercury Vapors in Scientific Laboratories, *J. Research Nat. Bur. Stand.* 26: 357-375, 1941.
9. Mercury Vapor Detector (Selenium Sulfide), Bulletin DO-1, Mine Safety Appliances Company, Pittsburgh.
10. Woodson, T. T.: A New Mercury Vapor Detector, *Rev. Scient. Instruments* 10: 508-511 (Oct.) 1939.

trical and radio industries. The process of heat treating these metal products involves the use of metallic mercury and introduces the occupational hazard of mercurialism.

Acute and chronic industrial mercurialism are not to be confused with acute poisoning by ingestion of mercurial salts. Acute industrial intoxication is largely a disease of the oral mucous membrane. Chronic mercurialism is a disease of the nervous system with characteristic manifestations and frequently unfavorable prognosis.

Sanitary engineering to prevent toxicity from mercury involves careful and controlled housekeeping, design of equipment to prevent accumulation of mercury and to promote collection of spillage, ventilation to insure a minimum concentration of mercury in the air and housing of apparatus within hoods which are forcibly exhausted. Supervised personal hygiene of workmen, preemployment examination and frequent medical observation are also essential for the prevention of morbidity.

In the treatment of mercurialism, removal from exposure is the first essential. Dental care is important in all cases showing gingivitis and stomatitis and is usually all that is required in early acute cases. The treatment of chronic mercurialism is largely empirical and consists of symptomatic and supportive measures.

Clinical Notes, Suggestions and New Instruments

SEDATION AS AN UNEXPECTED SYSTEMIC EFFECT OF PRIVINE

J. I. WARING, M.D., CHARLESTON, S. C.

Three cases are reported in which prinine hydrochloride produced sedation. This effect might not have been anticipated from the general character of the drug, which gives a complicated type of systemic stimulation in animals. Trial observations by Drs. F. M. Martin and R. P. Walton in the Department of Pharmacology disclosed that intravenous doses in 4 rats and 3 dogs produced hyperpnea, gross muscle spasms, occasional reflex hyperexcitability and convulsions. The effects of fatal doses suggestively resembled acute epinephrine deaths.

The clinical observations have a parallel in the systemic actions of ephedrine, which is ordinarily a stimulant or analeptic drug in adults. In a report by Bonzanigo¹ ephedrine was found to produce sedative effects frequently in children between the ages of 3 months and 14 years. Ephedrine was given to these patients in doses large enough to produce the characteristic hypertension.

CASE 1.—A girl aged 7 years, with vasomotor rhinitis, had been given a prescription (by another physician) which directed that 5 drops of prinine hydrochloride (0.1 per cent solution) be taken in each nostril three times a day. Consistently after each administration the patient felt drowsy and talked vaguely for several hours. After the drops were omitted she seemed normal.

CASE 2.—An infant girl aged 3 months with acute rhinitis was given a prescription for prinine hydrochloride (0.05 per cent solution) to be used as 2 drops in each nostril every four hours. After each treatment she slept for about eight hours, so that ordinarily the drug was given only at eight hour intervals. On one occasion she was definitely drowsy for twenty-

four hours after receiving only 2 drops of the solution. No similar effect was noted when another preparation (neosynephrin hydrochloride 0.25 per cent) was used.

CASE 3.—A boy aged 3 years drank an uncertain amount of prinine hydrochloride 0.05 per cent solution, probably 7 or 8 cc. He soon became quite drowsy and remained so for several hours afterward.

82 Rutledge Avenue.

CURARE IN THE ACUTE STAGE OF POLIOMYELITIS

PRELIMINARY REPORT

NICHOLAS S. RANSOHOFF, M.D., LONG BRANCH, N. J.

A preparation of curare¹ has been used in the Orthopedic Service of the Monmouth Memorial Hospital in the past 4 consecutive cases of acute anterior poliomyelitis. In view of the present prevalence of this disease and the striking improvement of the symptoms obtained, the publication of the present preliminary report seems warranted.

REPORT OF CASES

CASE 1.—D. G., a girl aged 2½ years, was admitted with acute anterior poliomyelitis. Nuchal rigidity was pronounced, and there were rigidity of the entire back, hamstring spasm on both sides and gastrocnemius spasm on the right. The patient was treated in the routine way for ten days and was then given 0.9 mg. of curare per kilogram. Within two hours after the initial administration of the drug the child was sitting up in bed and playing for the first time. There was definite diminution of the nuchal rigidity and in the rigidity of the back. Both legs could be flexed at the hip with the knee extended to 90 degrees.

CASE 2.—M. G., a girl aged 13 years, was admitted to the hospital five days previously with the diagnosis of acute anterior poliomyelitis. She had been in almost continuous pain, which was not relieved by mild sedation or hot packs. There was complete paralysis of the left lower extremity, definite abdominal weakness and weakness of the right quadriceps. An intramuscular injection of 0.9 mg. of curare per kilogram was given. Within twenty minutes the patient was fast asleep for the first time since admission. She slept for ten hours, at which time she awoke complaining of pain in the back again. Hot packs were applied and after the first fifteen minute pack she dropped off to sleep again. The following day there was still a great deal of spasm of her back muscles and a great deal of rigidity of her back, although her nuchal rigidity had diminished considerably. Another dose of curare was administered, 0.9 mg. per kilogram. She has been pain free ever since. There was definite improvement in the strength of her abdominal muscles. Her back is still rigid, but much less so.

CASE 3.—J. D., a boy aged 10 years, was admitted with acute anterior poliomyelitis, ptosis of the left eyelid, paralysis of the right facial muscles, and difficulty in swallowing and breathing. There was pronounced nuchal rigidity and back spasm. The respirator was kept next to his bed with the idea that he might need it. After 0.9 mg. of curare per kilogram his breathing came easier and he swallowed without difficulty. The following day his ptosis had disappeared and there was much more strength in his facial muscles. On the second day he was found sitting up in bed.

CASE 4.—M. G., a girl aged 3, was admitted with acute anterior poliomyelitis. Nuchal rigidity and opisthotonos were pronounced. The child was crying continually and was most irritable. As by the time this child was admitted it had been decided to give curare to the patients with acute poliomyelitis, she was given immediately 0.9 mg. per kilogram. Within one-half hour her opisthotonos, which had kept her back off the bed, had disappeared and she was sleeping. The Kernig sign, which had been positive, disappeared.

From the Department of Pediatrics, Medical College of the State of South Carolina.

1. Bonzanigo, Curzio: Klinisch-experimentelle Untersuchungen der Ephetonin-Wirkung im Kindersalter, Arch. f. Kinderb. 94: 15, 1931.

From the Orthopedic Service of the Monmouth Memorial Hospital.
1. Intocostrin (Squibb).

COMMENT

This preliminary report is being presented because there is a great deal of poliomyelitis in the country at the present time, and it is hoped that other observers will use this drug. Whether or not 0.9 mg. per kilogram is the ideal dosage is not known, but it is felt that in the more severe cases and in older children it will probably be necessary to increase this dose.

ACUTE SECONAL POISONING

REPORT OF A FATAL CASE WITH AUTOPSY

LIEUTENANT COMMANDER MARK C. WHELOCK (MC), U.S.N.R.
AND

CAPTAIN ALFRED M. FREEDMAN
MEDICAL CORPS, ARMY OF THE UNITED STATES

The wide and promiscuous use of barbiturates provides ample opportunity for their employment in suicides. Case reports of death due to most of the barbiturates have been made in the literature, and information is available concerning their toxicity.¹ A survey of the literature has failed to reveal any cases of seconal poisoning which terminated fatally. It was therefore felt important to report a case of seconal poisoning which eventuated in death.

REPORT OF CASE

A white man aged 24, a corporal, was discovered dead the morning of April 20, 1944, in his barracks. It was known that he had been a retiring and seclusive individual, who seemed to have made a poor adjustment to military activity. Recently he had been rejected for overseas duty because of "neurasthenia." He was not known to have had any other illnesses, and a survey of this and previous posts showed that he did not report on sick call or receive medical treatment at any time. On April 19 the victim behaved in his customary manner. He did not complain of any illness or appear unusually moody. He retired at the usual hour (10 p. m.), and during the night men sleeping in adjacent beds detected no disturbances or outcry.

The following morning, when his sergeant attempted to awaken him, he was found to be dead. Careful search of his effects, barracks and the surrounding area failed to reveal any drugs or poisons. No history of having obtained any drugs from army physicians, civilian physicians or local drug stores could be procured. A check of the careful record that is kept of all sedatives and narcotics, according to army regulations, failed to reveal any instances of drugs having been stolen.

Autopsy was performed on April 20, soon after death. Complete and careful autopsy, including the head, failed to reveal any anatomic cause of death. The positive anatomic findings were as follows:

Cardiovascular System: Hypertrophy of heart, 350 Gm., fatty infiltration of myocardium.

Respiratory System: Passive hyperemia of lungs, moderate; primary tuberculous focus, right upper lobe, obsolete.

Spleen and Hemopoietic Tissues: Passive hyperemia of spleen, moderate; acute hyperplasia of spleen, 440 Gm.; delayed clotting of blood.

Gastrointestinal System: Lymphocytic infiltration and dilatation of veins in the submucosa at junction of esophagus and stomach.

Liver: Parenchymatous degeneration of liver, 1,750 Gm.

Genitourinary System: Passive hyperemia of kidneys, moderate; adrenal rest, left kidney.

Bones and Joints: Hyperplasia of bone marrow.

Because of suspicion of possible drug poisoning, the stomach contents, intestinal contents, urine and blood were saved and submitted to the Army Medical School for toxicologic analysis.

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writers and are not to be considered as reflecting the policies of the Navy Department.

I. Hamburger, W. E.: The Promiscuous Use of the Barbiturates: II. Analysis of Hospital Data, *J. A. M. A.* 114: 2015 (May 18) 1940.

ysis. The study of the entire gastric content, 27 cc., revealed 0.9 Gm. of seconal. In 800 cc. of urine, 24 mg. of seconal was likewise found. No barbiturate was found in the blood. No evidence of any other drugs was found.

COMMENT

Seconal sodium is a short acting barbiturate that has been introduced for medical use in the past decade. The average adult hypnotic dose of seconal is stated to be 0.1 to 0.2 Gm.² In animal experiments, after oral administration of a single anesthetic dose, anesthesia appears within one-half hour and symptoms completely disappear in twelve hours. Clinically, seconal sodium exerts its effect within fifteen to twenty minutes, while its duration of action is between five and seven hours. Since seconal is a short acting drug, it is destroyed almost completely in the liver. Renal excretion occurs rather slowly and takes place only when a relatively high blood level is present. Seconal is not recovered in the urine when the dose is in the sedative range.³

In this case it is apparent that unconsciousness had existed for a considerable period before death occurred. The stomach was practically empty (27 cc. of stomach content) and the bladder was much distended (800 cc. of urine content in the bladder). It was estimated that death occurred at 4 to 5 a. m. or six to seven hours after the patient was observed to retire. The presence of 24 mg. of seconal in the 800 cc. of urine points to a high seconal level in the blood at one time. Likewise the discovery of 0.9 Gm. of seconal in 27 cc. of gastric contents indicates that a much larger dose must have originally been taken. It has been stated that fifteen times the ordinary hypnotic dose is fatal. The presence of a dose of seconal in the stomach almost as high as the fatal dose after six to seven hours of absorption had taken place brings one to the conclusion that the victim ingested a large amount of seconal. The failure to discover any seconal in the blood is explained on the basis of rapid destruction by the liver.

Early death in barbiturate poisoning is usually the result of paralysis of the respiratory center. The shorter acting barbiturates are particularly prone to produce death by respiratory depression.² The conclusion reached in this case shows that the cause of death was acute seconal poisoning.

The findings were submitted for review to the Army Medical Museum, and the interpretations were confirmed. Further, the case was also submitted to Dr. Alan R. Moritz, professor of legal medicine, Harvard University, who likewise agreed with the diagnosis of acute seconal poisoning.

This death due to an overdose of seconal is believed to be the first one reported. Noble⁴ reports that a woman recovered following the ingestion of 28½ grains (1.9 Gm.) of seconal, although she was in deep coma for a considerable period of time. The patient treated by France, Barnett and Yonkman⁵ was found at the point of death one hour after consuming 125 grains (8.3 Gm.) of a mixture of soluble pentobarbital and seconal. Vigorous treatment with picrotoxin and metrazol brought about full recovery. An unsuccessful suicide attempt has been described by Dorsey.⁶ The victim took 20 grains (1.5 Gm.) of seconal and was found nine hours later comatose, breathing so slowly that artificial respiration was necessary. Heroic therapy with picrotoxin was successful. The amount of seconal ingested in the case reported here is, of course, unknown, but has been estimated as at least 45 grains (3 Gm.).

This case emphasizes that the same care must be used in the employment of this drug as with other barbiturates. Further, it illustrates the necessity for saving stomach and intestinal contents, urine, blood and tissue, as needed, in order to pursue toxicologic investigation in all cases of death in which the cause is not readily apparent.

2. Goodman, L., and Gilman, A.: *The Pharmacological Basis of Therapeutics*, New York, Macmillan Company, 1941.

3. *Therapy with Barbiturates*, Eli Lilly and Company, Indianapolis 6.

4. Noble, T. D.: Barbituric Acid Poisoning, *M. Ann. District of Columbia* 11: 345, 1942.

5. France, C. J.; Barnett, M., and Yonkman, F. F.: *Recovery from Eight Grams of Barbiturates in Attempted Suicide*, *J. A. M. A.* 122: 173 (May 15) 1943.

6. Dorsey, J. F.: *The Picrotoxin Treatment of Barbiturate Poisoning*, *J. Nerv. & Ment. Dis.* 99: 367, 1944.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The following statement has been authorized for publication by the Council on Pharmacy and Chemistry.

AUSTIN SMITH, M.D., *Secretary,*

THE ADDITION OF SALT TO DRINKING WATER

A number of preparations containing sodium chloride have been made available commercially for distribution during hot weather to office employees, industrial workers and others. Some of the products are simple tablets containing sodium chloride, others have enteric coating to permit passage of the material into the intestine before disintegration occurs, and still others contain additional substances such as minerals and vitamins. All are intended to provide sodium chloride and other factors to combat the harmful effects of excessive heat, exercise and sweating.

The need for the addition of vitamins, salts other than sodium chloride and minerals to salt tablets does not have sufficient evidence to justify their routine use until more satisfactory evidence is provided. They can therefore be dismissed from the casual prescribing practice.

However, there is strong evidence to support the administration of additional amounts of sodium chloride to the diet of those subject to strenuous exercise and excessive perspiration. Normally a person leading a sedentary life does not need salt in addition to the amount ordinarily placed in food. If copious sweating occurs, such an individual may require additional salt. Excessive perspiration is frequently encountered in those leading a strenuous physical life and may even occur during more moderate temperatures. However, such sweating entails loss of both water and salt, although the loss of salt varies with the amount of sweating and with conditions of acclimatization of the individual. Under special conditions man may become acclimated to hot weather, and work has shown that individuals exposed continuously to hot weather excrete less salt in their urine, compensating thereby for the loss of salt by sweat.

Sweat contains from 0.2 to 0.3 per cent, perhaps even up to 0.5 per cent, of sodium chloride. If a person perspires profusely considerable salt will be lost; for example, an individual might lose from 10 to 15 Gm. of salt. A man performing heavy work may lose a quart of sweat per hour. At the same time the chlorides in the blood decrease, and even though water is drunk it is not retained in the body and the body becomes dehydrated. Drinking too much water in the presence of dehydration created by loss of salt in water can cause water intoxication.

Under ordinary conditions the appetite or hunger for salt regulates the intake. A simple criterion used by many to judge the amount of salt needed is the amount of water drunk and excreted per day. When the total water intake is under 1 gallon per day the amount of salt in the usual normal diet (about 16 Gm.) is claimed to be adequate to cover salt losses by sweating, but with water intake above 1 gallon usually more salt is needed. However, one Council consultant has found that in profuse sweating neither thirst nor salt hunger is a reliable guide. He and his associates found that rats and persons select salt and water so that a 0.6 per cent salt solution is ingested. The same investigator advocates drinking a 0.2 per cent salt solution when profuse sweating occurs, such as when a man performs heavy work. On the other hand, the man who performs light work probably needs no more salt than can be obtained in the ordinary diet. If additional amounts of salt are required they can be obtained by the use of well salted foods.

When Boulder Dam was being built, considerable enthusiasm was aroused concerning the supplying of additional amounts of salt, which compensated for the amount lost by

the body and at the same time caused the men to drink more water. Smelters, iron workers and others who work in the presence of great heat have apparently been successfully given salted water to prevent heat cramps.

Symptoms of heat exhaustion and heat cramps are commonly associated with a salt deficit. Frequently victims suffer from severe cramps, often localized in the abdomen, the condition apparently being brought on by drinking large amounts of water at a time when the loss of sodium chloride from the body is excessive. The condition can be treated at once by the intravenous injection of sodium chloride solution, but it can be prevented by maintaining an adequate salt intake with the water. So far as is known, no harmful effects follow the use of such salt water if it is properly prepared, although the use of salt in tablet form may irritate the stomach and cause nausea and vomiting and other disturbances in some persons. The amount of salt taken should be adjusted to actual need and, as is known, this need will vary with exercise and acclimatization. In areas where periods of hot weather are broken by cooler weather or where people are subjected to strenuous exercise only at periodic intervals, the need for salt supplement may exist only during these special periods, and this need may become less after the people become acclimatized. There is such great variance among different individuals according to their physiologic adjustments that it seems best to provide these persons with a 0.1 to 0.2 per cent drinking water solution when a need for extra salt seems indicated. Some may easily be satisfied merely by the addition of salt to their food. A 0.1 per cent solution may be made by dissolving about 1 Gm. of sodium chloride in each quart of water, or about 1 Gm. per liter.

Council on Foods and Nutrition

ACCEPTED FOODS

The following additional foods have been accepted as conforming to the Rules of the Council on Foods and Nutrition of the American Medical Association for admission to Accepted Foods.

GEORGE K. ANDERSON, M.D., *Secretary.*

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, 1939, p. 156)

Beech-Nut Packing Company, Canajoharie, N. Y.

BEECH-NUT STRAINED PEARS AND PINEAPPLE, consists of Bartlett pears, pineapple, sugar and water.

Analysis (submitted by manufacturer).—Total solids 16.72%, moisture (by difference) 83.28%, ash 0.22%, fat (ether extract) 0.31%, protein (N \times 6.25) 0.34%, crude fiber 1.10%, carbohydrates other than crude fiber (by difference) 14.75%, calcium (as Ca) 0.014%, phosphorus (as P) 0.009%, iron total 0.54 mg. per hundred grams, iron "available" (bipyridyl method) 0.55 mg. per hundred grams, copper (McFarlane method) 0.15 mg. per hundred grams.

Calories.—18 per ounce; 63 per hundred grams.

Vitamins.—Vitamin A equivalent...26 U. S. P. units per hundred grams
Thiamine0.24 mg. per hundred grams
Ascorbic acid0.2 mg. per hundred grams
Riboflavin0.017 mg. per hundred grams
Niacin0.33 mg. per hundred grams

Beech-Nut Packing Company, Canajoharie, N. Y.

BEECH-NUT STRAINED PEARS, consists of pears, sugar and water.

Analysis (submitted by manufacturer).—Total solids 13.54%, moisture (by difference) 86.46%, ash 0.20%, fat (ether extract) 0.37%, protein (N \times 6.25) 0.31%, crude fiber 1.02%, carbohydrates other than crude fiber (by difference) 11.64%, calcium (as Ca) 0.016%, phosphorus (as P) 0.009%, iron total 0.44 mg. per hundred grams, iron "available" (bipyridyl method) 0.33 mg. per hundred grams, copper (McFarlane method) 0.23 mg. per hundred grams.

Calories.—14 per ounce; 51 per hundred grams.

Vitamins.—Vitamin A equivalent...430 U. S. P. units per hundred grams
Thiamine0.011 mg. per hundred grams
Ascorbic acid0.5 mg. per hundred grams
Riboflavin0.015 mg. per hundred grams
Niacin0.27 mg. per hundred grams

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SATURDAY, SEPTEMBER 8, 1945

DEFICIENCY OF B VITAMINS IN MAN

A recent report of Keys and his associates¹ recounts their observations in an extensive investigation of the influence of a borderline deficiency and of an acute deprivation of some of the B group of vitamins in human subjects. Eight normal young men were given a diet providing a daily allowance of 3,300 calories, 75 Gm. of protein and 0.18 mg. of thiamine, 0.25 mg. of riboflavin, 3.5 mg. of niacin per thousand calories, with 5,000 units of vitamin A and adequate vitamin D. Four were given in addition 1 mg. of thiamine, 1 mg. of riboflavin and 10 mg. of nicotinic acid amide; these served as the supplemented control group. The experiment extended over one hundred and sixty-one days.

The urinary excretion of thiamine in both groups declined rapidly and in less than thirty days reached a more or less constant level. At the end of the study 1.1 per cent of the intake of thiamine of the restricted group appeared in the urine, whereas 8.5 per cent of that of the supplemented group was excreted through the kidneys. With respect to the loss of riboflavin in the urine, the value for the restricted group was 12.1 per cent and that of the control group 22.5 per cent. Many tests were made on physical fitness, psychomotor function, basal metabolic rate, cardiac function, emptying time of the stomach, glucose tolerance, sensory and intellectual functions and personality evaluations; differences in the response of the two groups were not found on the basis of the foregoing evaluation or with respect to clinical ophthalmic or neuropsychiatric examinations. Only on the basis of the resting level of pyruvic acid in the blood was a difference detected; there was a slight but statistically significant increase in this value in the restricted group.

The study on acute deficiency followed immediately and continued for twenty-three days. Two previously restricted subjects continued on a diet containing negligible amounts of the three B vitamins concerned but otherwise adequate, and 2 were given the same food

but with 1.5 mg. of thiamine, 1.5 mg. of riboflavin and 25 mg. of niacin per thousand calories; 2 previously supplemented subjects were given the deficient ration and two the same diet plus the added B vitamins. The most obvious change was seen in the restricted-deficient pair, who showed increasing anorexia from the seventh to the twenty-first day; similar, though somewhat delayed, signs were observed in the 2 men who had been in the supplemented group and now were on the deficient diet. Changes in the results of the objective tests were "surprisingly small . . . in view of the marked changes in general behavior and obvious signs of subjective distress." There were no changes in the tissues which are looked on as likely to furnish early signs of vitamin deficiencies, but again there were slight increases in the lactic and pyruvic acid levels of the blood toward the end of the test period. Deterioration in endurance and coordination was progressive, but there were few if any effects on strength, vision, hearing and speed.

The evidence indicates that thiamine is the limiting factor in these experiments. It appears that, though there was little deviation from the normal as a result of the restriction of thiamine, superimposition of acute deficiency indicates that the allowances in the first part of the study were less than adequate. From a practical point of view there still exists the need for more incisive tests for detecting incipient deficiency of the B vitamins, especially thiamine.

ALCOHOL PROBLEMS

In a report to its lay members the Research Council on Problems of Alcohol presents a summary of studies carried on during the period of 1939 to 1944.¹ A critical survey of the literature to 1941 on the effects of alcohol on the individual was completed by the New York University College of Medicine group headed by Norman Jolliffe and E. M. Jellinek. Volume I of this study (Yale University Press, 1942) is devoted to the etiology and treatment of abnormal drinking and to the mental and bodily disorders of chronic alcoholism. Workers at the Phipps Psychiatric Clinic of Johns Hopkins University under Dr. Curt P. Richter investigated the question of the appetite shown by animals and human beings for alcohol and whether this appetite gives any indication regarding the nutritional needs fulfilled by alcohol. When rats were given free access to purified minerals, vitamins, carbohydrates, fats and proteins, in separate containers, they made dietary selections which kept them in good health. For example, adrenalectomized rats ingested large amounts of sodium chloride and thereby kept themselves alive and free from symptoms of insufficiency; parathyroidectomized rats ingested large amounts of calcium solutions and

1. Keys, A.; Henschel, A.; Taylor, H. L.; Mickelson, O., and Brezel, J.: *Am. J. Physiol.* 144: 5 (June) 1945.

1. The Research Council on Problems of Alcohol, 60 East 42d Street, New York 17: Report on Studies 1939-1944: A Summary for Lay Members.

avoided phosphorus solutions, thereby keeping themselves alive and free from tetany; pancreatectomized rats ate large amounts of fat and avoided carbohydrate, thus helping to eliminate their symptoms of diabetes. This knowledge of the rat's ability to make advantageous dietary selections was utilized as a tool for the investigation of nutritional problems. The problems, according to these authors, were literally put to the rat, and the rat with its selections has usually given a definite answer. It was found that rats prefer alcohol to water in concentrations of 1 to 6 per cent. Under normal conditions they take only small amounts of alcohol in higher concentrations. By their preferences the rats placed alcohol in the group of substances which have nutritional value. When forced to take larger amounts of alcohol, rats reduced their food intake almost directly in proportion to the caloric intake obtained from the alcohol. Since the rats grew and thrived under these circumstances, the results indicated that alcohol may replace large amounts of food. Of primary importance is the fact that the total caloric intake did not surpass its normal level. Taste threshold and maximum preference concentrations were determined for 240 human subjects between the ages of 4 and 50 years. The taste thresholds were similar to those found in rats. The preference concentrations varied through a much wider range. While most children and adults did not like alcohol in concentrations above 15 per cent, about 8 per cent liked the alcohol up to and including 50 per cent. The investigators suggest that these youngsters who liked alcohol in such high concentrations might be the potential drinkers, while the others who disliked it, even in low concentrations, might thus, by their taste mechanisms, be kept from drinking larger amounts of alcohol.

Studies on the toxic factors in alcoholism were conducted by the New York State Psychiatric Institute. Studies of the nervous system in a series of rats which had been intoxicated with ethyl alcohol and reared with various diets, each diet deficient in a single vitamin of the B group, with the exception of nicotinic acid, revealed pathologic alterations characteristic of the deficiency of the corresponding vitamin; the addition of alcohol produced neither qualitative nor quantitative modifications of the pathologic picture. Studies of the central nervous system in a series of guinea pigs treated with alcohol and kept deficient in vitamin C did not show significant pathologic changes.

Drs. Lloyd H. Ziegler and Josef A. Kindwall studied the conditioned reflex treatment of 29 patients. Of the 29, 16 were considered successes and 13 failures. Although this is a preliminary study on a small number of persons, the authors are inclined to consider the conditioned reflex treatment a promising method of management of drunkards.

Surveys of facilities for the treatment of alcoholism revealed that hospital facilities for the care and treatment of alcoholic addicts in the United States are scanty and inadequate, and that those which exist are not always utilized to the best advantage. There has been little recognition of the need of diagnostic centers to determine the indications for therapy on an individual basis or of the need for facilities for adequate treatment. The authors feel that the diagnostic and therapeutic services, as well as research and professional education in this field, are functions of hospitals. Hospitals are best staffed and equipped to undertake the multiple phases of diagnosis and early medical treatment, particularly if the services of psychiatrists are available. Diagnostic clinics of the type established at Hartford and New Haven under the "Yale Plan" should prove of immense value as the first step toward securing the segregation of various types of patients.

In a study on the role of alcohol in the development of liver cirrhosis, Jolliffe indicates that the frequency of this condition is greater in the inebriate portion than in the temperate and abstinent part of the population but that it would be fallacious to assume from this fact alone that alcohol bears a direct causal relationship to cirrhosis. The attempts of numerous investigators to produce cirrhosis in animals by the experimental administration of alcohol have been uniformly unsuccessful. Jolliffe and Jellinek have computed the participation of inebriety in deaths from liver cirrhosis to be approximately 35 per cent. Thus, about 65 per cent of deaths from liver cirrhosis occur in noninebriates. Recent clinical studies have demonstrated that several other afflictions of the inebriate are caused by dietary deficiencies rather than by the direct action of alcohol. Among these are polyneuropathy, pellagra, some cardiovascular disturbances, niacin deficiency and encephalopathy and Wernicke's encephalopathy. A study of 198 inebriates with liver cirrhosis has failed to demonstrate any beneficial effect of high carbohydrate diets or of vitamin B₁ on the course of cirrhosis of the liver in the inebriate.

The Council's research program for the future proposes to follow two major lines: First, the committee will suggest problems and plans for research on the cause or causes (biologic and social) of alcoholism in man. The committee will include the study of effects of alcohol on various organs, functional processes and capacities. The second aspect of the program provides for establishment in the hospitals of medical schools of one or more research centers with facilities for diagnosis and treatment. Through such studies it may be possible in time to recognize early in life, especially in adolescents, the organism personality with subnormal resistance to alcohol in the hope of providing an effective method of preventing alcoholism.

Current Comment

THE DISCHARGE OF ARMY MEDICAL OFFICERS

During the last week several letters have been received signed by groups of physicians in various Army Medical Corps installations throughout the country urging that a different plan be adopted for the release of medical officers from the Army. Some of these letters have insisted that the American Medical Association should conduct a determined campaign in behalf of the technic they propose. One letter just received from Sheppard Field, Texas, signed by sixty-one medical officers, proposes that

those civilian physicians below the age of 45 who have been taxing their strength by working as many as fourteen hours a day be allowed the privilege of serving their country during the remainder of the emergency. This would allow those physicians who have completed three or more years of service and/or those above the age of 38 an opportunity to return to their homes and their families. It should be noted that the eight hour day, as is common in the peacetime army, would be less taxing to their strength than the fourteen hour day, no matter what their physical status may be.

The letter further proposes that this utilization of civilian physicians be accomplished by joint action of the American Medical Association, the Procurement and Assignment Service and the Office of the Surgeon General. The American Medical Association officially or through any of its agencies has no authority or power to compel any action on the part of the Army authorities or the Office of the Surgeon General. THE JOURNAL hopes shortly to announce the revised system by which some thirteen thousand physicians of the Army medical department are to be released by the end of 1945 as stated in an announcement made last week by Surgeon General Kirk.

NONEXCRETION OF PENICILLIN IN BOVINE MILK

Bryan and his associates¹ have recently reported unsuccessful attempts to treat chronic streptococcic mastitis of cattle by intravenous injection of massive doses of penicillin. Seeley and his associates² of the Storrs Agricultural Experiment Station, Connecticut, made quantitative studies of the rate of excretion of intravenously injected penicillin into bovine milk. After the introduction of 500,000 Oxford units of a calcium salt of penicillin into the jugular vein of a Jersey heifer the animal was milked dry every half hour during the first six hour period and at hourly intervals thereafter, the final sample being taken twenty-four hours after the injection of penicillin. Preliminary tests had shown that, as measured by zone size milk enhances the in vitro action of penicillin against the

test organism. With the cup technic, a zone of inhibition was not observed with any of the milk samples drawn from the injected heifer. From these negative results Seeley concludes that the lactating bovine mammary gland is not permeable to penicillin.

LOCAL PROGRESS IN PUBLIC HEALTH

The 1944 annual report of the health department of the city of Racine¹ comes to hand coincidentally with the retirement of the city health officer after serving the city for almost fourteen years. His immediate predecessor served for over eight years. Both these health officials represented the same training, background and attitude toward public health work. Both worked in close cooperation with the local medical society and received the support of that society regularly. During these twenty-two years the city of Racine received six honor awards for outstanding health service in the Interchamber Health Conservation Contest sponsored by the American Public Health Association and the National Chamber of Commerce. Characteristic of the health service in Racine is an adequate budget in keeping with the budgets for other departments of the city government; the per capita appropriation for 1944 was \$1.23. In that year other notable records were achieved. Not a single birth was attended by a midwife; every birth was reported by a physician; only 11 of the 1,147 resident births were delivered at home. Only 2 mothers died in childbirth, a rate of 1.3 per thousand births. The infant death rate was 21.9 per thousand births and there was not a single death from diarrhea and enteritis in children under 2. The city suffered not a single death from acute communicable disease. There was not an outbreak of illness traceable to any food product. Extensive laboratory services in the public health field were offered to the local physicians. This notable health record is accentuated by the fact that never at any time has the city of Racine had outside funds or subsidies either from state, from federal or from private sources, except for a small state participation in venereal disease control work. Racine is an industrial city with large numbers of families in the moderate income classification. The report establishes the success that can be achieved by local control, local financing and local leadership. The two health officers who served the city for more than two decades were not in either instance residents of Racine. They were both Wisconsin men, and the political leadership which brought them to the city, supported their work and cooperated with them was definitely and at times militantly local. Vociferous demands for federal financing, leadership and control are thus answered by the record of this city, doubtless not unique. Local initiative, local financing and local control have been sufficient in Racine to assure good progress in public health.

1. Bryan, C. S.; Horwood, R. E., and Huffman, C. F.: Vet. Med. 40: 87, 1945.

2. Seeley, H. W., Jr.; Anderson, E. O.; Plastridge, W. N., and Pearson, Patricia: Science 102: 44 (July 13) 1945.

1. Annual Report, 1944, Department of Health, City of Racine, Wis.

MEDICINE AND THE WAR

ARMY

COMMISSIONS IN THE MEDICAL DEPARTMENT, REGULAR ARMY

1. The Surgeon General invites the attention of all Medical Department officers and former officers, other than those retired, of both male and female component corps, to War Department Circular 243, dated August 10, on the subject "Interest in Commissions in the Regular Army," a summary of which follows:

(a) "Present indications are that a number of outstanding officers who have proved their capabilities in this emergency will be needed in the Regular Army peacetime establishment. Until appropriate legislation is enacted, the War Department cannot announce the conditions which will govern selection of these officers or the number required. However, it is desired that officers who have served in the emergency, whether or not they are still on active duty, be given the opportunity of indicating their interest in obtaining a Regular Army commission. An officer making such a statement of interest may go off active duty or remain in the service without prejudice to his chances of being tendered a commission when legislation is enacted. It is the intention of the War Department that the fact that an officer has not remained in active service will not affect the grade to be offered or the position he will occupy on the promotion list.

(b) "The plan for selecting and integrating officers into the Regular Army officers corps, as well as the size and composition of that corps, will finally be determined by Congress. The War Department will recommend that these officers integrated into the Regular Army be of such age and physical condition as will permit them to serve for a reasonably long period before being retired. No officer will be appointed in a grade higher than that which he held in wartime.

(c) "The content of this circular will be brought to the attention of every officer at the earliest opportunity."

2. Officers currently on active military duty and who are interested in being considered for commission in the Regular Army, following enactment of appropriate legislation, may submit a statement of interest to their immediate commanding officer as outlined in the circular.

3. Officers and former officers other than those retired who have served since Dec. 7, 1941 and who have been relieved from active military duty under honorable conditions may submit their statement of interest as outlined in the circular direct to the Adjutant General, Washington 25, D. C.

4. The submission of a statement of interest in a Regular Army commission in no way obligates an officer to apply for such a commission at any time.

5. At such time when the policies establishing the conditions and procedures for selection and integration of officers into the Regular Army, Medical Department, are finalized, the Surgeon General will make immediate announcement in this publication.

ESTABLISH EIGHT CENTERS FOR TREATMENT OF TROPICAL SKIN DISEASE

Major Gen. Norman T. Kirk, Surgeon General of the Army, recently announced the establishment of eight centers specializing in the treatment of tropical skin disease. The centers will be devoted to the care of men returned from overseas, particularly the Pacific areas. The number of beds involved was not made public, as the program may be expanded or contracted as the need arises. The centers will be at Wakeman General Hospital, Camp Atterbury, Indiana; Brooke General Hospital, Fort Sam Houston, Texas; Madigan General Hospital, Fort Lewis, Wash.; Moore General Hospital, Swannanoa, N. C.; Harmon General Hospital, Longview, Texas, and in the U. S. Army General Hospitals at Camp Edwards, near Boston, Camp Butner, near Durham, N. C., and Camp Carson, near Colorado Springs.

ARMY AWARDS AND COMMENDATIONS

Major George A. Marks

The Legion of Merit was recently awarded to Major George A. Marks, formerly of Boston. The citation accompanying the award read "For exceptionally meritorious conduct in the performance of outstanding service in the Southwest Pacific Area from July 11, 1942 to June 13, 1944. Major Marks organized, trained and commanded a portable surgical hospital which was attached to an infantry regiment during the Papuan campaign. Under his exceptional leadership the unit moved in close proximity to front line troops and achieved a remarkable record in the care of the sick and wounded. It was essentially as a result of his professional ability and guidance that many lives were saved under the most difficult conditions of jungle warfare. Later, as a surgical consultant, he visited hospitals in advanced areas as an instructor and adviser. His knowledge and advice proved invaluable both in the treatment of casualties and in assisting and planning of additional facilities. By his outstanding ability in the field of surgery, Major Marks made a signal contribution to medical treatment in the Southwest Pacific Area." Dr. Marks graduated from Harvard Medical School, Boston, in 1928 and entered the service April 1, 1942.

Captain Richard O. Bagley

The Air Medal was recently awarded to Capt. Richard O. Bagley, formerly of San Francisco and now flight surgeon with the 51st Troop Carrier Squadron, based in Italy. The award was made for the part he played while the squadron was engaged in the evacuation of partisan wounded and Allied airmen who had evaded capture by the Germans from behind enemy lines in Yugoslavia. On one occasion Captain Bagley was flown at night in a C-47 troop carrier type aircraft without escort to an unfamiliar landing strip deep behind enemy lines in Yugoslavia to administer treatment to a seriously wounded and unconscious American air crewman. Through the treatment given by Captain Bagley at his destination, under the pressure of detection by the Germans at any time, and his continual treatment throughout the flight, the patient's condition was maintained until he was delivered to a base hospital in Italy. Dr. Bagley graduated from the University of Colorado School of Medicine, Denver, in 1939 and accepted a commission as 1st lieutenant in the Army Medical Corps in August 1942.

Lieutenant Colonel James W. Branch

The Bronze Star and Oak Leaf Cluster was recently awarded to Lieut. Col. James W. Branch, formerly of Hope, Ark., "for meritorious service in connection with military operations against an enemy of the United States in France, Belgium, Luxembourg and Germany during the period Dec. 1, 1944 to April 25, 1945. As surgeon of the 6th Armored Division, Lieutenant Colonel Branch has exhibited unusual aggressiveness, courage and ability in supervising and coordinating the medical activities of the division. His humanitarian efforts have greatly facilitated the prompt treatment and evacuation of Allied prisoners of war and the immediate alleviation of suffering of displaced persons. The faithful cooperation and careful devotion to duty displayed by him have been of material benefit and reflects great credit on himself and the Medical Corps." Dr. Branch graduated from the University of Arkansas School of Medicine, Little Rock, in 1935 and entered the service Feb. 3, 1941.

Captain Grover R. Fattic Jr.

Capt. Grover R. Fattic Jr., formerly of Hot Springs, Mont., was recently cited "for meritorious achievement in connection with military operations against the enemy on Luzon, Philippine Islands, from Feb. 1, 1945 to May 10, 1945. Captain Fattic did under the most trying difficulties of weather and enemy shell fire personally supervise all phases of the evacua-

tion of the wounded by litter and ambulance throughout the period. His cool determination, excellent judgment in the commanding and training of Medical Department soldiers, and the efficient evacuation and excellent treatment of the sick and wounded reflect great credit on him and on the military forces." Dr. Fattic graduated from the College of Medical Evangelists, Los Angeles, in 1938 and entered the service June 26, 1941.

Captain Jacob Thomas Farris

The Bronze Star, the Silver Star and the Purple Heart were awarded posthumously to Capt. Jacob Thomas Farris, formerly of Richmond, Ky. The citation accompanying the Bronze Star read "For meritorious service in connection with military operations against an enemy of the United States in — from June 6 to June 29, 1944." The Silver Star citation read "For gallantry in action against an enemy of the United States in —, July 25, 1944. The initiative and courage displayed by this officer reflects great credit on himself and the armed forces of the United States." Dr. Farris graduated from Vanderbilt University School of Medicine, Nashville, Tenn., in 1940 and entered the service Aug. 26, 1941. He was killed by enemy fire in Normandy, France, near St. Lo, Aug. 3, 1944.

Colonel J. Guy Strohm

The Legion of Honor (officer) and the Croix de Guerre (with palm) was recently awarded to Col. J. Guy Strohm, formerly of Portland, Ore., for "his splendid work in command of the American Forty-Sixth General Hospital while this unit was supporting the First French Army." Dr. Strohm also shares in the Meritorious Service Unit Plaque awarded the American Forty-Sixth General Hospital some time ago and also the Legion of Honor (chevalier) and the Croix de Guerre (with star) for meritorious service as division surgeon of the Ninety-First Division during the first world war. Dr. Strohm graduated from Rush Medical College, Chicago, in 1910 and entered the service June 15, 1942.

Brigadier General Charles C. Hillman

Brig. Gen. Charles C. Hillman, Washington, D. C., was recently awarded the Legion of Merit for "service from August 1939 to August 1944. As chief of the Professional Service, Office of the Surgeon General, by his untiring effort and devotion to duty, he was responsible for the development of this service from a small prewar division to a large, well balanced organization. Under his direction physical standards were set up for the wartime army and professional direction was given to the blood plasma program and many other technical procedures which have been highly successful in the war effort." General Hillman graduated from Rush Medical College, Chicago, in 1911.

Colonel Charles C. Hubbard

The Bronze Star was recently awarded to Col. Charles C. Hubbard, formerly of Uniontown, Pa., for the part he played in the campaign to liberate the southern Philippines as chief of the Plans and Operations Division of the Medical Section, where, according to the citation, "he was largely responsible for the adequate medical service and evacuation which was available at all times for every sick and wounded individual in each of the Eighth Army operations." Dr. Hubbard graduated from Jefferson Medical College of Philadelphia in 1930 and entered the service in July 1941.

Major Joseph Robert Campbell

Major Joseph R. Campbell, formerly of the Mayo Foundation, Rochester, Minn., was awarded the Bronze Star recently and an oak leaf cluster to the Bronze Star. Both citations read, in part, "for meritorious and direct support of combat operations." Dr. Campbell is division psychiatrist for the 3d Infantry Division in Germany. He graduated from the University of Manitoba Faculty of Medicine, Edmonton, Alberta, in 1937 and entered the service Aug. 21, 1942.

Captain Jackson C. Neavles

Capt. Jackson C. Neavles, formerly of Webster Groves, Mo., was recently awarded the Bronze Star for meritorious service in action with his army airborne division in Holland. He also

served as a battalion surgeon with his unit during the Normandy campaign. Dr. Neavles graduated from Washington University School of Medicine, St. Louis, in 1942 and entered the service April 25, 1943.

Captain Charles H. Burnett

Capt. Charles H. Burnett, formerly of Boston, was recently awarded the Bronze Star for meritorious achievements in connection with military operations in the Mediterranean Theater of Operations. Describing Captain Burnett's work from Feb. 11, 1944 to May 8, 1945 the citation pointed out that "by virtue of his zeal and scientific skill he carried out during this period field studies of blood and blood substitutes which were of outstanding value in promoting the correct usage of these agents in the treatment of the seriously wounded. His untiring efforts and devotion to duty reflect great credit on himself and on the Medical Corps of the Army of the United States." Dr. Burnett graduated from the University of Colorado School of Medicine, Denver, in 1937 and entered the service Aug. 22, 1942.

Colonel Earle Standlee

The Cross of Knight Commander, Order of the Crown of Italy, was recently awarded to Col. Earle Standlee, formerly of Washington, D. C., in recognition of his meritorious services in Italy during the war. Dr. Standlee graduated from Baylor University College of Medicine, Dallas, in 1925 and entered the service June 1, 1925.

Lieutenant Colonel Luke A. Mulligan

Lieut. Col. Luke A. Mulligan, formerly of Leonia, N. J., as commanding officer of the 16th Field Hospital received for his unit the Meritorious Service Unit Plaque for exceptional service during the period from Dec. 21, 1944 to March 9, 1945. The 16th Field Hospital went to the aid of those in Bastogne and Avanches. Dr. Mulligan graduated from Long Island College of Medicine, Brooklyn, in 1929 and entered the service July 26, 1942.

Captain Charles H. Hall Jr.

The Bronze Star was recently awarded to Capt. Charles H. Hall Jr., formerly of Brooklyn, for meritorious services in support of combat operations in Italy. Captain Hall's medical detachment took part in the engagements of Africa, Salerno, Volturno River, Cassino, Anzio Beach, Rome, Florence and the Gothic line. He graduated from Long Island College of Medicine, Brooklyn, in 1939.

Major Merrill B. Rubinow

Major Merrill B. Rubinow, formerly of Manchester, Conn., was recently awarded the Bronze Star for heroic action on the Western front. His unit, the 37th Medical Battalion of the Third Army, was the recipient of a Meritorious Service Unit Citation. Dr. Rubinow graduated from Long Island College of Medicine, Brooklyn, in 1942 and entered the service Sept. 12, 1943.

Colonel Martin E. Griffin

The Cross of Knight Commander, Order of the Crown of Italy, was recently awarded to Col. Martin E. Griffin, formerly of Washington, D. C., in recognition of his meritorious service during the Italian campaign. Dr. Griffin graduated from the State University of Iowa College of Medicine, Iowa City, in 1925 and entered the service June 1, 1925.

Lieutenant Colonel Joseph O. Boydstone

The Bronze Star and Purple Heart were recently awarded to Lieut. Col. Joseph O. Boydstone, formerly of Little Rock, Ark., during the campaign of the division in France, Belgium, Luxembourg and Germany. Dr. Boydstone graduated from the University of Arkansas School of Medicine, Little Rock, in 1932 and entered the service Sept. 20, 1940.

Captain Regis F. Asselin

Capt. Regis F. Asselin, formerly of Detroit, was recently awarded the Bronze Star for distinguished and meritorious service, over and beyond the call of duty, in accomplishing malaria control in a highly malarial area. Dr. Asselin graduated from the Long Island College of Medicine, Brooklyn, in 1939 and entered the service Sept. 5, 1942.

NAVY

TRANSFER OF RESERVE MEDICAL
OFFICERS TO THE REGULAR
UNITED STATES NAVY

New and notable opportunities for outstanding medical careers in the Navy have now been developed. Reserve medical officers who have given thought to the matter of transferring to the Medical Corps of the regular Navy should have full information about the opportunities and inducements warranting such a move.

The Medical Corps of the Navy must be greatly enlarged to provide for postwar officer requirements, and applications for transfer of reserve officers are invited and urged.

The development of the residency-type graduate training program in United States Naval Hospitals, described again in THE JOURNAL September 1, is of importance to medical officers in all age groups interested in specialization.

The American College of Surgeons has recently surveyed and officially approved thirty-two United States naval hospitals for graduate training in various of the surgical specialties.

The Council on Medical Education and Hospitals of the American Medical Association, acting jointly with the American boards, has surveyed and approved for residency training in medical and surgical specialties three of these hospitals and at this moment is engaged in a similar survey of thirty-seven additional naval hospitals for the same purpose.

Officers in the older age groups already trained and classified as specialists will fit into key positions in the educational program as teachers and leaders as well as clinicians. Younger officers, when assigned for duty in these naval hospitals, and also in many instances in unsurveyed and unclassified activities, will be in a position to train and perfect themselves in the specialty of their choice and to have credit for the time so spent applied toward applications for American board certification and fellowship in the American College of Surgeons or the American College of Physicians, as well as later election to national special societies.

In other words, a medical career in the Navy now affords opportunities for training, for attainments and for clinical and teaching activities as well as for honors quite comparable to those of civilian practice and limited only by an individual's initiative and ability.

Every medical officer has been classified and graded in the Professional Qualification Section of Personnel Division, Bureau of Medicine and Surgery, together with a listing of any expressed preferences for special training or experience. This will expedite all matters of appropriate assignment and proper utilization of officers in peacetime activities.

It is the intention of the Bureau of Medicine and Surgery to make every effort to assign reserve medical officers transferring

to the Medical Corps of the Navy to postgraduate instruction in naval hospitals at the earliest practicable date consistent with the exigencies of the service.

The bureau intends also to resume extensively the use of the civilian medical centers for postgraduate training of medical officers of the Navy.

It is reemphasized that the Navy is in need of a large number of additional medical officers in the Medical Corps of the regular Navy and that interested reserve officers desiring further information on the subject, or wishing to make application for transfer, should communicate accordingly with their commanding officers at the earliest possible moment.

NAVY AWARDS AND COMMENDATIONS

Lieutenant Lewis D. Norris

Lieut. Lewis D. Norris, formerly of Minneapolis, was recently awarded the Bronze Star. The citation accompanying the award read "For meritorious achievement in connection with operations against the enemy on Iwo Jima, Volcano Islands, from Feb. 24 to March 16, 1945. Throughout the active phase of the operations Lieutenant (junior grade) Norris, as battalion surgeon with a Marine Division, displayed outstanding professional skill, sound judgment and courage in the care of our own and enemy wounded. All sick and wounded prisoners of war captured within the division's zone of action were brought into the aid station of his battalion. Because of his untiring initiative, devoted courage and skilful professional ability he was a constant inspiration to his men and contributed materially to the success of the operation. His conduct was in keeping with the highest traditions of the United States Naval Service." Dr. Norris graduated from the State University of Iowa College of Medicine in 1943 and entered the service April 8, 1944.

Lieutenant Commander George J. Miller

Lieut. Comdr. George J. Miller, formerly of Hempstead, N. Y., was awarded the Silver Star by Lieut. Gen. H. M. Smith for "conspicuous gallantry and intrepidity while acting as battalion surgeon of a marine artillery battalion in action against the Japanese on Saipan in the Marianas Islands in the summer of 1944." With complete disregard for his own safety and without shelter, Commander Miller gave medical treatment and supervised the evacuation of 275 casualties from his battalion and adjacent units. Dr. Miller graduated from the Long Island College of Medicine, Brooklyn, in 1940 and entered the service July 25, 1941.

MISCELLANEOUS

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

California

Letterman General Hospital, San Francisco: Surgery of the Hand, Dr. Edmond Dana Butler, September 15; Diagnosis and Treatment of Diabetes Mellitus and Diabetic Coma, Dr. H. Clare Shepardson, September 29.

Station Hospital, Camp Stoneman, Pittsburg: Diagnosis and Treatment of Various Skin Diseases, Dr. John Graves, September 29.

Hammond General Hospital, Modesto: Thoracic Surgery, Dr. Brodie Stephens, September 19.

U. S. Naval Hospital, Mare Island: Subacute Bacterial Endocarditis: Diagnosis and Treatment with Penicillin, Dr. Henry D. Brainerd, September 14.

Station Hospital, Fort Ord: Early Ambulation of Surgical Patients, Dr. H. Glenn Bell, September 29.

UNRRA LAUNCHES ANTIMALARIA
PROGRAM IN GREECE

As part of an all out drive against the critical increase of malaria in Greece, the largest air borne antimalaria program yet launched in Europe will soon be undertaken by UNRRA in Greece in cooperation with the Greek government. Roy F. Hendrickson, acting director general of UNRRA, stated that ten specially equipped planes are being sent to that country to be used in spraying mosquito breeding areas with DDT. According to the UNRRA chief medical officer in Greece, Dr. J. Balfour Kirk, there are some areas in the country where 100 per cent of the population is infected with malaria fever. Data now available indicate that 40 to 50 per cent of the country will be infected during the season which lasts from April through October. The present number of victims approaches the three million mark. Prior to the war the estimated average number of cases in Greece was approximately 50,000 per year. In addition to the planes and other equipment necessary for the treatment of malaria swamps, UNRRA will aid Greek health officials in the work of spraying 750,000 homes with DDT.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Sept. 3, 1945.

Formation of Committee to Assist Veterans Seeking Medical Careers

District of Columbia medical and nursing school heads have formed a committee under Dr. Paul F. Dickens, District chairman of the WMC Procurement and Assignment division, to assist veterans seeking to study medicine, pharmacy, dentistry, nursing and allied science. The committee includes Dr. Walter A. Bloedorn, dean of George Washington University School of Medicine; Father David V. McCauley, dean of Georgetown School of Medicine; Dr. John W. Lawlah, dean of Howard University College of Medicine; Dr. John P. Burke, dean of Georgetown University School of Dentistry; Dr. Roger M. Choisser, head of George Washington University School of Medical Technicians; Sister Marie Gerarda, superintendent of nurses at Georgetown University Hospital; Mrs. Helen Shoemaker, nurses' superintendent at Sibley Memorial Hospital, and Lloyd W. Hazelton, executive officer of George Washington School of Pharmacy.

The Army expects to release 13,000 doctors by the end of 1945 and the Navy 8,200 by September 1946, officials of both services have told the House Military Affairs Committee. Surgeon General Kirk also revealed that the Army will discharge 3,500 of its 15,000 dentists and 25,000 of its 56,000 nurses by December. He stated that the Army has 45,000 doctors for its 400,000 patients in army hospitals throughout the world.

The Navy plans to cut its present 3,389,000 strength to 500,000 enlisted men by September 1946 and will reduce its medical staff from 14,000 to 5,800 by that time, stated Capt. H. G. Hopwood, special assistant chief of naval personnel. In the next three months the Navy will release 1,000 nurses and 1,000 doctors. The Navy will shortly change its point discharge system.

Former WAC Staff Director Reports to General Bradley

Onetime executive secretary to the medical director of the Veterans Administration for twelve years, and for ten years an attorney in the solicitor's office, Lieut. Col. Mary Agnes Brown, former WAC staff director in the Pacific, has reported to Gen. Omar N. Bradley, Administrator of Veterans' Affairs, to serve as an adviser on matters pertaining to women veterans. More than 300,000 women are either serving or are already released from the armed forces. Brig. Gen. Frank T. Hines, who has been named American ambassador to Panama, was honored at a reception in the Mayflower Hotel, given by Edward B. Scheiberling, national commander of the American Legion.

Enrollment of Servicemen in Medical Schools

Despite the efforts of the War Manpower Commission to encourage veterans to enroll in medical and dental schools, the Army and Navy have enrolled more than 1,000 servicemen as first year medical students. This action is said to have been taken because of commitments to the schools and to the men. The services will probably keep them in school for only one semester. The Navy announced that, although its V-12 program will be liquidated starting November 1, 1,500 V-12 students are entering medical and dental schools for one year. The majority are enrolled in medicine. The Army has 400 enrolling in medical schools this fall under the Army Specialized Training Program. Some 5,700 other medical and 1,450 dental students in the Navy V-12 program will remain on active duty until the end of the semester now current or starting before November 1. An Army spokesman said that the Army was

obligated under the act setting up the Specialized Training Program to continue it until Congress calls a halt. Veteran meantime, complain that they have been told they cannot go into medical school under the G. I. bill for a year or more because schools are full. A representative of the War Manpower Commission Procurement and Assignment board estimates that 75 to 80 per cent of medical schools are occupied by Army and Navy students. Ten days ago the WMC announced plans "to enroll immediately 12,000 students for medical, dental, premedical and pre-dental courses beginning this fall from among veterans now being discharged from the armed forces." This recent check discloses that medical schools are filled and cannot take the large number of students the WMC said could be enrolled.

Plight of Disabled Veterans Being Studied

Government leaders are giving more and more thought to care for disabled war veterans, who will carry a double load in making their readjustment to civilian life. Those departments charged with work on behalf of such veterans are studying advanced methods of treatment and job finding. Business and government agencies, such as the Army Map Service and Bertram's Pipe Factory in Washington, are already making it a point of hiring disabled veterans. The public is also making a conscious effort to assist in their readjustment.

Army Medical Service May Be Transferred

The proposed reorganization of the War Department is said to include plans to take the Surgeon General's Office, along with the Adjutant General's Office and the Provost Marshal General's Office, out of the Army Service Forces and place them directly under the Secretary of War.

Committee on Scientific Exhibit

MEDICAL MOTION PICTURES

Medical motion pictures are available on a loan basis from the American Medical Association to medical societies, medical schools, hospitals and other scientific groups. Requests should be instituted as far in advance as possible, so that the proper reservations can be made. The exact shipping addresses and dates should be given at the time of the request. Responsibility for the projection and care of the film must be borne by the individual or organization which is borrowing it. The American Medical Association does not have projectors available for loan.

The only expense incurred is that of transportation both ways. However, careless handling resulting in serious damage may be charged to the borrower.

Requests should be sent to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10.

ANESTHESIA

Dynamics of Respiration (1938; revised 1944)

Silent. Color. 16 mm., 3 reels, 400 feet each.
Running time about 40 minutes.

Dynamics of respiration showing normal respiration, respiration at various stages of anesthesia and in different pathologic conditions. Prepared by the Departments of Anesthesia, Radiology and Photography, University of Wisconsin Medical School, Madison, for the Special Exhibit on Anesthesia of the American Medical Association.

Pediatric Anesthesia (1944)

Silent. Color. 16 mm., 2 reels, 400 feet each.
Running time 30 minutes.

For use in demonstrating the technique of anesthesia in children. Prepared by Dr. M. Digby Leigh, Department of Anesthesia, Children's Memorial Hospital, Montreal, Que., Canada.

Regional Anesthesia for Operations on the Neck (1938)

Silent 16 mm, 1 reel 400 feet
Running time about 16 minutes
Film shows detail of technic of anesthesia for operations on the neck
Prepared by Dr Ralph M Tovell, Section on Anesthesia, the Mayo Clinic, Rochester, Minn, for the Special Exhibit on Anesthesia of the American Medical Association

Signs of Inhalation Anesthesia (1938)

Silent 16 mm, 2 reels, 300 feet each
Running time about 25 minutes
Details of signs of inhalation anesthesia with charts presented by Dr Arthur E Guedel, Los Angeles
Prepared by Dr Henry S Ruth and Dr J Harvey Sigafos, Department of Anesthesia, Hahnemann Hospital, Philadelphia, for the Special Exhibit on Anesthesia of the American Medical Association

Technic of Blocking Sacral Nerve (1938)

Silent 16 mm, 1 reel, 400 feet
Running time about 15 minutes
Film shows details of technic for blocking sacral nerve
Prepared by the Section on Anesthesia, the Mayo Clinic, Rochester, Minn, for the Special Exhibit on Anesthesia of the American Medical Association

The Technic of Carbon Dioxide Absorption in Anesthetic Atmospheres (1938)

Silent 16 mm, 2 reels 400 feet each
Running time about 30 minutes
Details of technic for absorbing carbon dioxide in anesthetic atmospheres
Prepared by Departments of Anesthesia and Photography, University of Wisconsin Medical School, Madison, for the Special Exhibit on Anesthesia of the American Medical Association

The Role of Carbon Dioxide in Convulsions During Anesthesia (1942)

Silent 16 mm, 1 reel about 200 feet
Running time about 7 minutes
The picture shows convulsions during anesthesia and their control
Prepared by Departments of Anesthesia, Radiology and Photography, University of Wisconsin Medical School, Madison

PHYSICAL MEDICINE

Aids in Muscle Training (1938)

Silent 16 mm, 1 reel 300 feet
Running time about 12 minutes
Demonstration of sling suspension exercises for the upper and lower extremities graded exercises on a powdered board for the lower extremities and three kinds of "walkers" for reeducation exercises
Prepared by the Council on Physical Medicine, American Medical Association, 535 North Dearborn Street, Chicago

Contraction of Arteries and Arteriovenous Anastomoses (1935)

Silent 16 mm, 1 reel 250 feet
Running time 10 minutes
This film visualizes the contraction of arteries and arteriovenous anastomoses as seen through a glass chamber installed in a rabbit's ear
Prepared by Dr E R Clark, University of Pennsylvania School of Medicine, Philadelphia

Effects of Heat and Cold on the Circulation of the Blood (1933)

Silent 16 mm, 1 reel, 300 feet
Running time 12 minutes
Demonstration of the effect of heat and cold on circulation as seen through a glass chamber installed in a rabbit's ear
Prepared by Dr E R Clark, University of Pennsylvania School of Medicine, Philadelphia

Effects of Massage on the Circulation of the Blood (1933)

Silent 16 mm 1 reel 200 feet
Running time 8 minutes
Demonstration of the effect of massage on circulation as seen through a glass chamber installed in a rabbit's ear
Prepared by Dr E R Clark, University of Pennsylvania School of Medicine, Philadelphia

Massage (1938)

Silent 16 mm 1 reel 100 feet
Running time 4 minutes
Demonstration of technic of massage, describing the various movements and why they are performed in a given way
Prepared by the Council on Physical Medicine, American Medical Association, 535 North Dearborn Street, Chicago

Occupational Therapy (1938)

Silent 16 mm 2 reels 450 feet
Running time 12 minutes
This film demonstrates occupations that may be prescribed by physicians to motivate and control the desired physical or mental activity of the patient and assist in his adjustment to long hospitalization
A section on cerebral palsy is included, picturing indirect muscle training through prescribed activity and stressing the importance of early treatment to prevent growth of faulty habit patterns
Prepared by the Council on Physical Medicine, American Medical Association, 535 North Dearborn Street, Chicago

Underwater Therapy (1938)

Silent 16 mm, 1 reel 400 feet
Running time about 16 minutes
Presentation of therapeutic use of large and small exercise pools, Hubbard tanks and home made tanks, and demonstration of types of exercises given in cases such as infantile paralysis, cerebral palsy and postoperative congenital dislocation of the hip
Prepared by the Council on Physical Medicine, American Medical Association, 535 North Dearborn Street, Chicago

OTHER SUBJECTS

Angina Pectoris (1942)

Sound Color 16 mm 2 reels 1,600 feet each
Running time about 1½ hours
A Summary of Objective Studies (Part I Clinical Characteristics Part II Physiology Part III Pathology Part IV Treatment)
Produced by Dr Joseph E F Riseman, Boston

Back to Normal (1945)

Sound 16 mm, 1 reel, 550 feet
Running time about 16 minutes
This film shows how science makes it possible for those who lose their limbs by amputation or accident to adjust themselves to old or new occupations
Artificial limbs and special training centers are the means to this goal
Prepared by British Information Services 30 Rockefeller Plaza, New York 20

Blood Transfusion

Silent 16 mm 1 large reel 1,200 feet
Running time about 45 minutes
Three methods of blood transfusion illustrated in detail
Sponsored by the Blood Transfusion Betterment Association 39 East 78th Street, New York
Produced by Mr Joseph P Hackel, New York

Eyes for Tomorrow (1944)

Sound 16 mm 1 reel
Running time about 15 minutes
This stresses good general health as a prerequisite for good eyesight
It also deals with the importance of antepartum care as a means of reducing the amount of blindness caused by syphilis and gonorrhea, the conservation of vision among school children, the use of sight saving glasses for children with seriously defective vision, the necessity for regular eye examinations, methods of treating glaucoma and trachoma, and the eye hazards of industry
Produced by National Society for the Prevention of Blindness, Inc, 1790 Broadway, New York 19

Keep 'Em Out (1942)

Sound 16 mm, 1 reel, 325 feet
Running time about 15 minutes
The film describes the economic damage and health hazards caused by rats
Produced by Stark Films, 537 North Howard Street, Baltimore 1, in cooperation with U S Public Health Service

Medical History in Clinical Teaching (1940)

Silent 16 mm 2 reels, about 300 feet each
Running time about 25 minutes
History of physical diagnosis with scenes from the lives of Hippocrates, William Harvey, Rev Stephen Hales, Leopold Auenbrugger von Auenbrug, Rene Theophile, Hyacinthe Laennec and Wilhelm Konrad Roentgen
Prepared by Department of Cardiology, Woman's Medical College of Pennsylvania, Philadelphia

Physical Diagnosis (a presentation of advanced and unusual cases with physical signs demonstrable by inspection) (1942, revised 1945)

Silent Color 16 mm, 17 reels, 400 feet each
Following are the subjects and the approximate running time of the various reels
Abnormalities in Gait Reel 1 15 minutes
Other Types of Involuntary Movement Reel 2 15 minutes
Endocrine Diseases with Characteristic Physiognomy Reels 3 and 4 30 minutes
Abnormalities in Color Reel 5 15 minutes
Head and Face Reels 6, 7 and 8 45 minutes
Neck Reel 9 15 minutes
Chest Reels 10 and 11 25 minutes
Displacement of the Apical Impulse Reel 12 10 minutes
Abdomen Back and Perineum Reels 13 and 14 25 minutes
Extremities Reels 15, 16 and 17 40 minutes
Produced by Dr Gordon B Myers, Dr Fred J Margolis and Dr Muir Clapper, Wayne University College of Medicine, Detroit

Syphilis—A Teaching Film (1942)

Sound 16 mm, 3 reels
Part A Diagnosis of Early Syphilis, 18 minutes
Part B Diagnosis of Latent Syphilis, 14 minutes
Part C Management of Syphilis, 29 minutes
Prepared by United States Public Health Service

The Hygiene of Swimming

Silent 16 mm 1 reel 400 feet
Running time 15 minutes
This picture shows that man is not adapted to aquatic life and illustrates the danger of infection to the ear, nose and throat, the danger of diving in shallow water and the danger of chilling from cold water
Prepared by Dr H Marshall Taylor, Jacksonville, Fla, for the Section on Laryngology, Otology and Rhinology of the American Medical Association

The Life History of the Rocky Mountain Wood Tick (1939)

Silent Color 16 mm 2 reels 400 feet each
Running time about 25 minutes
The tick is listed as the vector of (1) Rocky Mountain Spotted Fever, (2) tularemia, (3) Colorado tick fever, (4) American Q fever and (5) tick paralysis
There are many views of landscapes showing the type of foliage wherein the ticks are commonly found, as well as of the various wild and domesticated mammals which serve as hosts for the blood meals necessary for the development of the ticks
Produced by The Rocky Mountain Laboratory of the U S Public Health Service, Hamilton, Mont

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Personal.—Dr. Thomas Addis, professor of medicine, Stanford University School of Medicine, San Francisco, was on July 17 chosen a fellow of the Royal College of Physicians of Edinburgh.

Fund Named for Ruby Cunningham.—Almost \$7,000 has been donated to establish a memorial in honor of Dr. Ruby L. Cunningham, late senior physician at the Ernest V. Cowell Memorial Hospital, Berkeley. The fund will be known as the Ruby L. Cunningham Fund and will be used in connection with the student health service for "extraordinary demands" which could not be met through ordinary channels.

Robert Millikan Retires.—Robert A. Millikan, Sc.D., has retired as administrative head of the California Institute of Technology, Pasadena. He will continue as vice president of the board of trustees and assist the president of the board in public relations work and institutional development as well as devote much time to his own research and writing. Max Mason, Sc.D., Pasadena, has also retired as a member of the executive council.

Regulation Concerning Hycodan.—Hycodan will be treated under the state narcotic act as codeine, with the exception of exemption, according to recent regulations of the state division of narcotic enforcement. Prescriptions calling for hycodan in combination with other nonnarcotic medicinal ingredients may be written on the ordinary single prescription blanks of physicians but may not be refilled. Hycodan is not exempt in any amount from the writing of a prescription by the physician prescribing it.

DISTRICT OF COLUMBIA

Clinic for Alcoholics.—As a step toward the formation of a mental hygiene clinic service the District of Columbia Health Department has organized a clinic for alcoholic addicts. Dr. Michael M. Miller, a member of the staff of St. Elizabeths Hospital, who formerly developed a clinic for alcoholic addicts in Cleveland, has been secured on a volunteer basis for two clinic sessions weekly. Other personnel are on a volunteer basis and have been recruited from Alcoholics Anonymous. Service in the local health department must meet Civil Service requirements and the arrangement, therefore, in regard to the staffing of the clinic has been adopted as a temporary measure. Patterned in a general way after the Yale University Clinic for Alcoholics, the clinic saw 275 patients between August 6, the day of its opening, and August 20. Acute alcoholic addicts are referred to the Gallinger Municipal Hospital for detoxication purposes, following which the psychiatric clinic service takes over and uses members of Alcoholics Anonymous for whatever moral support the group can give to the patient. Nonacute cases, however, not requiring institutionalization are carried by the use of sedation and stimulants as required.

ILLINOIS

Personal.—Dr. Robert K. Campbell, Springfield, medical director of St. John's Sanatorium, crippled children's school and hospital, on August 7 observed his twenty-fifth anniversary as a member of the staff.

Chicago

Talk on Cancer.—A series of popular medical lectures at the Museum of Science and Industry (THE JOURNAL, July 28, p. 962) has been so acceptable that, by request of the audience, one on cancer was added August 29 with Dr. Herbert E. Schmitz, professor and head of the department of obstetrics and gynecology at Loyola University School of Medicine, as the speaker. Dr. H. William Elghammer, professor of pediatrics at Loyola, gave a talk August 22 on "Rheumatic Fever in Childhood."

Herbert Kobes Named Director of Crippled Children's Services.—Dr. Herbert R. Kobes, director of medical services, Maine Department of Health and Welfare, Augusta, Maine, has been appointed director of the division of services for crippled children of the University of Illinois, with central offices in Springfield at 1105 South Sixth Street. He succeeds

Lawrence J. Linck, who recently resigned to become executive director of the National Society for Crippled Children (THE JOURNAL, August 11, p. 1117).

A New Residency in Anesthesiology.—The surgery department of the University of Chicago School of Medicine is establishing a new three year residency in anesthesiology. A part of the time will be devoted to research and the remainder to clinical work. This residency will be under the supervision of both Dr. Huberta M. Livingstone, associate professor of surgery and director of anesthesiology, and Dr. Eugene M. K. Geiling, professor and chairman of the department of pharmacology. Requests for information regarding this residency should be sent to Dr. Livingstone.

INDIANA

One Hundred and One Years of Age.—Dr. Henry C. Rogers, Rockville, observed his one hundred and first birthday, August 16. Dr. Rogers graduated at the Indiana Medical College, Indianapolis, in 1876.

New Board of Health and Hospitals.—Dr. Herman G. Morgan was recently appointed secretary of the newly created Indianapolis Board of Health and Hospitals and director of public health. The board was established by the last legislature and supplants two separate boards. Other appointees include Drs. Charles W. Myers, director of hospitals; Kenneth G. Kohlstaedt, medical director of the Indianapolis City Hospital; James D. Peirce Jr., assistant director of the hospital, and Gerald F. Kempf, superintendent of preventive medicine.

Health Center Under Construction.—Under the direction of the Indianapolis board of health, the construction of a health center building as an adjunct to Flanner House was begun on June 13. The building will cost approximately \$105,000, with an additional \$20,000 to be spent for equipment, and will contain clinic, examination and x-ray rooms and offices for staff members. The work will be tied up with the city's slum clearance project, and, in addition to diagnosis of the causes, particularly from the standpoint of housing and environment, a case-finding program of tuberculosis, venereal diseases, antepartum medicine, infant and child health, dental and general medicine will be conducted.

MINNESOTA

Personal.—Dr. Ruth Evelyn Boynton, Minneapolis, was recently elected president of the Minnesota Department of Health.—Dr. Elmer Mendelsohn Jones, St. Paul, has been appointed a member of the state board of medical examiners to succeed the late Dr. Max W. Alberts, St. Paul.—Dr. David E. Ellison has resigned as venereal disease control officer of the Minneapolis Department of Health, effective September 1.

Sentenced for Operating Clinic in "Bloodless Surgery."—On July 17 "Dr." Albert Henry Broden, "naturopathic physician," Milwaukee, pleaded guilty to an information charging him with practicing healing without a basic science certificate in the district court of Hennepin County, Minn. Broden was sentenced to a term of one year in a Minneapolis workhouse, the sentence being stayed on condition that Broden "immediately leave the state and stay out." Broden was arrested by Inspector Bernath of the Minneapolis police department after a joint investigation by the Minnesota State Board of Medical Examiners and the Minneapolis police department on July 14 at the Hotel Andrews, where he was conducting a so-called "clinic" in "bloodless surgery." Broden admitted to the court that he charged \$150 for each person who attended his clinic. His records show that he obtained \$600 from three chiropractors and one masseur. Broden, who represented himself as a "naturopathic physician," was arrested in Duluth in 1929 and convicted even though he took his case to the supreme court of Minnesota. He is said to have three convictions in Texas for violating the medical laws.

MISSOURI

William Cramer Dies.—William Cramer, Ph.D., research associate, Barnard Free Skin and Cancer Hospital, St. Louis, died in Denver August 10, aged 67. Dr. Cramer, research associate in cytology, Washington University School of Medicine, St. Louis, had been senior member of the scientific staff for the Imperial Cancer Research Fund in London from 1915 to 1939, when he came to the United States.

Medical Curriculum Revised.—All didactic work of the third year at Washington University School of Medicine, St. Louis, will be consolidated into a single conjoint course in medicine. This means that a disease will be discussed simul-

taneously by all of the departments concerned and the student will be given a complete picture of the disease. Another innovation is the rearrangement of the clerkships of the third and fourth years so as to make possible a clinical clerkship in preventive medicine. To do this the third year has been divided into quarters instead of trimesters as in the past. The elective quarter in the senior year remains. These departures are the result of a survey made by a subcommittee of the committee on medical education at the medical school.

MONTANA

State Medical Election.—Dr. Maurice A. Shillington, Glendive, was named president-elect of the Montana State Medical Association at its annual meeting July 15, and Dr. Sidney A. Cooney, Helena, was inducted into the presidency. Dr. Walter H. Stephan, Dillon, is vice president, and Dr. Raymond F. Peterson, Butte, was reelected secretary-treasurer.

Honorary Membership Awarded for Cancer Work.—The Montana State Medical Association has awarded honorary membership to Mrs. H. W. Peterson, Billings, field commander, northwest region, Field Army, American Cancer Society, and president of the Public Health League of Montana, for "unselfish devotion and outstanding accomplishments of the officers and members of the Montana division, American Cancer Society, in the field of cancer prevention and public health." The presentation was made to Mrs. Peterson by Dr. James C. Shields, Butte, president of the state medical association, at a banquet of its house of delegates.

NEBRASKA

Neuropsychiatry Foundation Organized.—The A. E. Bennett Neuro-Psychiatry Foundation, a nonprofit organization to conduct research into the cause, prevention and treatment of neurologic and psychiatric diseases, has been chartered in Nebraska and is functioning at the Bishop Clarkson Memorial Hospital, Omaha. Charter members include Dr. Abram E. Bennett, associate professor of neuropsychiatry, University of Nebraska College of Medicine; Dr. Paul T. Cash, now a major in the Army on duty in the neuropsychiatric service at Camp Carson, Colorado; Foster E. Bennett, Dr. Bennett's son, a student at Dartmouth Medical School, Hanover, N. H.; Fred W. Thomas, Omaha, a vice president of the First National Bank; Carl Falk, Omaha, president of Buffet & Co., and Fred N. Hellner, Omaha, attorney. The organization is the outgrowth of activities of the Fevcr Therapy Research Department of the University of Nebraska College of Medicine, conducted the past ten years at the hospital under the direction of Dr. Bennett. Besides research, the foundation will train residents or fellows selected by its trustees and finance specified students in graduate work in neuropsychiatry. The facilities at Clarkson, where a whole floor is given over to the neuropsychiatric division, will be used. A private fund of \$25,000 will be taken over by the foundation. Members of the advisory board will be Charles F. Kettering, D.Sc., director of research for General Motors Corporation; Dr. Ladislav J. Meduna, associate professor of psychiatry, University of Illinois College of Medicine, and Dr. Hans H. Reese, professor of neuropsychiatry, University of Wisconsin Medical School, Madison. Besides Dr. Bennett, director, the staff now includes Dr. Cornelia B. Wilbur, woman associate, and Dr. R. de la Fuente, graduate of the University of Mexico, and nurses.

NEW YORK

Charles Carpenter Goes to Philippines.—Dr. Charles M. Carpenter, associate professor of bacteriology and public health, University of Rochester School of Medicine and Dentistry, Rochester, has been sent to the Philippine Islands on a special medical mission by the Office of Scientific Research and Development. In cooperation with the medical corps of the Army, Dr. Carpenter will make an investigation of venereal diseases, on which he is a special consultant for the U. S. Public Health Service.

Cancer Teaching Evening.—On October 9 a "cancer teaching evening" will be held at the Rochester Academy of Medicine under the auspices of the Medical Society of the County of Monroe, the academy of medicine, the Seventh District Branch of the state medical society, the University of Rochester School of Medicine and Dentistry, the Tumor Clinic Association of the State of New York, the state medical society and the division of cancer control of the state department of health. The speakers will be Drs. John H. Garlock, New York, on "Carcinoma of the Colon" and John J. Morton Jr., Rochester, "Progress in Cancer Research."

Personal.—Dr. Nelson G. Russell, Buffalo, was honored with a specially called meeting of the city's advisory health board in recognition of his fiftieth anniversary of graduation from medical school. Dr. Russell is chairman of the advisory health board (*THE JOURNAL*, April 7, p. 934).—Homer L. Sampson, D.Sc., director of the x-ray laboratory at Trudeau Sanatorium, Trudeau, died in the Physicians Hospital, Plattsburg, May 16.—John M. McKibbin, Ph.D., instructor in nutrition, department of biochemistry, Harvard Medical School, Boston, and the School of Public Health, has been appointed assistant professor of physiologic chemistry at Syracuse University College of Medicine, Syracuse.

State Buys Sanatorium for Veterans.—New York State has agreed to purchase the \$3,600,000 Metropolitan Life Insurance Sanatorium at Mount McGregor for \$350,000 for use as a rest camp for returning New York veterans. At least 500 veterans can be accommodated on the property at one time. The sanatorium consists of seventy-five buildings and 1,500 acres, including a modern 421 acre dairy and poultry farm, and has been maintained since 1913 for Metropolitan employees, especially those with tuberculosis (*THE JOURNAL*, June 30, p. 679). Under a recently enacted law appropriating \$2,825,000 for veterans' assistance (*THE JOURNAL*, May 12, p. 144) the state was authorized to provide rest camps for returning veterans. It had been planned to have more than one camp, but Governor Dewey, in a statement to the press, said that the Mount McGregor camp is so large and so well equipped that it would obviate the need for additional camps.

New York City

Goldwater Fellows Named.—Dr. I. Norwich, assistant superintendent, Johannesburg Hospital, Johannesburg, South Africa, will fill one of the first S. S. Goldwater fellowships in hospital administration at Mount Sinai Hospital, according to the *Modern Hospital*. The fellowship permits one year of study and observation at Mount Sinai (*THE JOURNAL*, March 20, 1943, p. 960). Dr. Norwich, who is to arrive in the fall, is a native of Johannesburg and has done graduate medical study in England. Another fellowship has been granted to Marguerite M. Ducker, research assistant in the program in hospital administration at Northwestern University, Chicago. On completion of the fellowship, Miss Ducker is expected to return to the teaching staff in hospital administration at Northwestern.

Study of Alcoholic Addicts.—The New York Academy of Medicine, through one of its subcommittees, is carrying on a survey on the care and treatment of alcoholic addicts. Questionnaires have been sent to physicians in the city and to every hospital, sanatorium and other type of health facility treating inpatients. The physicians were asked whether they treat alcoholic addicts, whether they do so at special hours, what institutional facilities and treatment they use, what auxiliary organizations they use and what in their judgment is the best way to deal with the problem of the alcoholic addict. The hospitals were asked whether they treat alcoholic addicts for complications of diseases, sobering up or for the addiction, how many patients are treated, in what proportion in the acute cases are requests made for treatment for addiction, what treatment is used and whether follow-up services are provided. Results of the questionnaires will be compiled in a report which is expected to be available late in the fall.

OHIO

The Stone Memorials.—According to the *Ohio State Medical Journal* \$25,000 has been presented to the Ohio State University College of Medicine by Franz T. Stone, Columbus, in honor of the ninetieth birthday of his father, Julius T. Stone, former member and chairman emeritus of the university's board of trustees. One gift of \$20,000 will create the Julius F. Stone Fund for Medical Research, the income to be used particularly for research in the field of physical medicine. The second gift, \$5,000, creates the Julius F. Stone Medical Fellowship for research in the division of physical medicine. The first recipient of the fellowship is Dr. William G. Myers, a research associate in the department of bacteriology.

Health Legislation.—A bill has been enacted, effective October 12, authorizing the Ohio Department of Health to devise a suitable program for establishing a blood bank for civilian use. Another bill, effective September 10, provides for about \$1,000,000 to improve the state program for control and elimination of Bang's disease in cattle. Newly enacted legislation, effective October 11, changes the name of the division of mental diseases to the division of mental hygiene. An appropriation of \$5,000,000 is allotted under House Bill 477 for

improvements in and expansion of the facilities of the colleges of medicine and dentistry at Ohio State University, Columbus, and for the construction of a new hospital for clinic teaching and research.

Gifts to Western Reserve.—The Beaumont Foundation has given \$220,000 to Western Reserve University. One hundred thousand has been designated for application toward the cost of a new building to be constructed by the School of Applied Social Sciences, which will ultimately cost about \$500,000. One hundred thousand will be devoted toward research in the department of pathology in the medical school and \$20,000 will be applied to help finance a project to be undertaken jointly by Western Reserve University and the Cleveland Hearing and Speech Center. A portion will be used for completing and remodeling the new headquarters of the center (*THE JOURNAL*, June 9, p. 453) and the remainder for research and training of teachers in speech and hearing work. Both gifts were made in memory of Dudley, deceased son of the late Commodore Louis D. Beaumont, the latter having been in earlier years a resident of Cleveland and one of the founders of the May Company. The gift to the university was made through Nathan L. Dauby, Morton J. May and Nathan Loeser, trustees of the Beaumont Foundation.

OKLAHOMA

Progress of Public Relations Program.—The Oklahoma State Medical Association has organized a speaker's bureau consisting of more than 200 members of the medical profession as a part of its recently developed public relations program (*THE JOURNAL*, July 14, p. 819). Sixty-two laymen, including the governor, the president of the state university and the president of the Oklahoma Agricultural & Mechanical College, have agreed to participate. The general educational program includes:

Public education through the press, radio, motion pictures, and a speaker's bureau.

Postgraduate program to the doctors of the state, refresher courses from the state medical school, residencies and cooperation with the state medical school in added facilities, including research facilities, for returning service men and civilian doctors.

Postwar planning for the placement of doctors now in the armed services.

Intimate contact between the state association and county medical societies.

The program was initiated by a series of meetings in eight councilor districts, the remaining two districts to hold meetings in September.

PENNSYLVANIA

Ninety-Nine Years of Age.—Dr. Frank F. Frantz, Lancaster, observed his ninety-ninth birthday July 19. He is said to be the oldest living graduate of Jefferson Medical College of Philadelphia, receiving his degree in 1869.

Philadelphia

University News.—Under the will of the late Dr. Julius D. Love, Temple University School of Medicine, ultimately will receive one half of his \$70,000 estate. Until his death, July 4, Dr. Love had been practicing in Philadelphia for more than fifty-two years.

Personal.—Sir Alexander Fleming has been granted honorary membership in the Philadelphia College of Pharmacy and Science.—Dr. John Hart Toland has been appointed special assistant in the division of medical services of the board of education.—Dr. and Mrs. Charles Price Mercer recently celebrated their fiftieth wedding anniversary.

Memorial to Physician.—A gift of \$500 was recently presented as a memorial by the faculty and friends of Dr. Eleanor H. Balph to the Woman's Medical College of Pennsylvania. Dr. Balph was assistant professor of gynecology at the college at the time of her death in May. Dr. Mary M. Spears gave a similar gift in memory of Lieut. William McIndoe Spears Jr., Inf., Army of the United States.

RHODE ISLAND

Society Observes Fiftieth Anniversary.—The Pawtucket Medical Association stemmed from a Medical Science Club organized in Pawtucket in 1894, according to a review of the society's development presented by Dr. William N. Kalcounos, president of the society, as a feature of the society's fiftieth anniversary celebration on June 6. Dr. Charles F. Sweet is the only surviving member of the association, which held its first meeting and election of officers in March 1895. Dr. James L. Wheaton, who joined the association in 1895, was presented with a scroll at the celebration. A similar honor was to be made to Dr. Sweet, who was unable to attend.

TEXAS

Crippled Children Services Transferred to Health Department.—The transfer of the responsibility for administration of the Texas program of services to crippled children from the state department of education to the state department of health was recently authorized.

Changes at Southwestern Medical College.—Dr. Art Grollman, professor of experimental medicine, Southwest Medical College, Dallas, has been named professor of medicine and chairman of the department of experimental medicine. Simon Edward Sulkin, Ph.D., associate professor of bacteriology and immunology, has been named professor and acting chairman of the department. Dr. George T. Caldwell, professor of pathology, has been granted a year's leave of absence.

Hermann Professional Building.—A fourteen story building for offices of doctors and dentists to cost \$1,500,000 is being planned for a site adjacent to Hermann Hospital, Houston, newspapers report. The structure will be connected with Hermann Hospital by a tunnel and will be known as the Hermann Professional Building. Present plans call for a penthouse on the fourteenth floor, which will be available for a doctors' club. Tentative reservations for more than 70 per cent of the building space have already been made, it was stated. Another unit of Hermann Hospital is also planned. It will be located on a site between the proposed professional building and the present Hermann Hospital.

Judson L. Taylor Foundation.—The incorporation of the Judson L. Taylor Foundation has been announced. The group which will assist young surgeons to obtain advanced training and provide lectures by eminent surgeons, honors Dr. Taylor who died Nov. 28, 1944 of coronary occlusion while serving as a commander in the medical corps of the U. S. Navy. Dr. Taylor had served as president of the Harris County Medical Society and of the State Medical Association of Texas. He had also been a founder member of the American Board of Surgery. Friends who wish to contribute to the memorial to Dr. Taylor may address the Judson L. Taylor Foundation, 229 Medical Arts Building, Houston 2.

WISCONSIN

Cancer Detection Center.—The Medical Society of Milwaukee County some four months ago opened a cancer Detection Center. Space was provided in the student health center annex to the Marquette University School of Medicine, but the project has met with such good response that permanent offices are now being considered in connection with the executive headquarters of the medical society, with a full time medical secretary to answer inquiries and handle case records and follow-ups. Of the 798 persons seen during the first three months of operation, 41 received definite diagnosis of cancer. 18 of these had not been diagnosed previously. In addition to the 41, 74 persons with suspected cancer were seen and 86 gastrointestinal x-rays were recommended.

License Law Now Includes Suspension Clause.—The governor recently signed a law providing that the authority having the power to revoke a physician's license shall also have the power to order its suspension for a period not to exceed two years. The measure was suggested by the state board of medical examiners, and its introduction was authorized by the committee on public policy of the Wisconsin State Medical Society. The old law stipulated that the state board of medical examiners shall revoke the license of a physician convicted of a crime in the course of his professional conduct, and, by action brought for the purpose, a license may be revoked by a circuit court. Under the law many actions were deferred or delayed because law enforcement agencies felt the penalty of revocation was too severe although, in most cases, it was believed that some penalty should be provided.

Faculty Changes at Marquette.—Dr. William A. Douglas Anderson, associate professor of pathology, St. Louis University School of Medicine, St. Louis, since 1940, has been appointed professor of pathology and bacteriology and director of the department at Marquette University School of Medicine, Milwaukee, effective about October 1. Dr. Anderson, who graduated at the University of Toronto Faculty of Medicine in 1934, will also be pathologist at St. Mary's Hospital, Milwaukee. Dr. Samuel B. Pessin, Madison, who graduated at Marquette in 1929, has been appointed associate professor of pathology and bacteriology, also effective about October 1. Michael Laskowski, Ph.D., associate professor of physiologic chemistry at the University of Arkansas School of Medicine, Little Rock, has been appointed associate professor of biochemistry at Marquette University. He succeeds Thomas W. Ray, Ph.D., who retired because of ill health.

GENERAL

Student Health Activities.—New student health service buildings are being planned for the University of Alabama, University; University of Colorado, Boulder; Connecticut College, New London; University of Delaware, Newark, and the University of British Columbia.

Directory of Medical Women.—The first directory of medical women of the United States and its possessions is announced by the *Medical Woman's Journal*. The directory carries about 7,000 names of women physicians listed in alphabetical and geographic divisions.

Porter Fellowship Stipend Increased.—The Porter Fellowship, awarded by the American Physiological Society, which has been carrying an annual stipend of \$1,200 given by Dr. William T. Porter of the Harvard Apparatus Company, Boston, has been increased by Dr. Porter to \$2,400 annually. The fellowship, which has not been given since 1941, will be resumed in 1946.

Committee to Survey Health Problems in France.—A three member American Red Cross delegation has been named to survey child health problems in France at the invitation of the French government. Members of the committee include Louis I. Dublin, Ph.D., vice president, Metropolitan Life Insurance Company, New York; Dr. Leona V. Baumgartner, pediatrician on leave from the New York City Department of Health, and Mrs. Ida K. Fivian, instructor in foreign languages at the Bradford Junior College, Bradford, Mass.

Theobald Smith Gold Medal Awarded.—The American Academy of Tropical Medicine has announced that the Theobald Smith Gold Medal will be awarded to Dr. Charles M. Wenyon, protozoologist and retired director of the Wellcome Foundation Research Laboratories of London. *Tropical Medicine News* reports that because Dr. Wenyon's health is not in sufficiently good condition for him to make a journey to the United States to receive the award, arrangements will be effected for a presentation in London through the U. S. Embassy.

Journal of Gerontology.—The Gerontological Society, an outgrowth of the American Division of the Club for Research on Ageing, founded in 1939, plans to establish the *Journal of Gerontology*, to be issued quarterly beginning during the first quarter of 1946. According to *Science*, the committee on publications consists of Dr. Roy G. Hoskins, Harvard Medical School, Boston, chairman; Lawrence K. Frank, New York; Dr. William de B. MacNider, University of North Carolina School of Medicine, Chapel Hill, and Dr. Edward J. Stieglitz, Washington, D. C. The editor-in-chief is Dr. Robert A. Moore, Washington University School of Medicine, St. Louis.

Narcotic Violations.—The U. S. Bureau of Narcotics announces the following actions:

Dr. Addison G. Moore, Indianapolis, was convicted in the U. S. District Court at Indianapolis for violation of the federal narcotic law and on July 21 was sentenced to a prison term of one year and one day.

Dr. John C. Bigham, Batesville, Ind., pleaded guilty in the U. S. District Court at Indianapolis to violation of the federal narcotic law and on June 30 was sentenced to pay a fine of \$250.

Dr. James W. Benham, Columbus, Ind., pleaded guilty in the U. S. District Court at Indianapolis to violation of the federal narcotic law and on June 30 was sentenced to pay a fine of \$300.

Dr. Alma Alphonso Thorum, Spring City, Pa., was convicted in the U. S. District Court at Philadelphia on July 16 of a narcotic violation and was sentenced to serve a prison term of one year and one day.

Dr. Henry M. Bankhead, Fulton, Mo., pleaded guilty in the U. S. District Court at St. Louis to a violation of the federal narcotic law; sentence was suspended and he was placed on probation for five years, one of the provisions of which was that he enter the U. S. Public Health Service Hospital, Lexington, Ky., and remain there until discharged.

Dr. Raymond O. Cheney, Live Oak, Fla., was convicted in the Dade County, Fla., Court of Criminal Record for violation of the Florida Uniform Narcotic Drug Act; on June 26 imposition of sentence was deferred from day to day and term to term until the further order of the court.

March of Dimes Totals Almost Seventeen Million.—A total of \$16,589,874 was contributed to the 1945 March of Dimes for the National Foundation for Infantile Paralysis, as against \$10,973,491 for 1944. Of the total amount of funds raised, 50 per cent is allotted to national headquarters of the foundation to finance research into the cure and prevention of infantile paralysis and a broad educational program which includes scholarships and fellowships in orthopedic nursing, physical therapy, orthopedic surgery, virology and health education, as well as to maintain an emergency epidemic fund to aid county chapters in areas hard hit by outbreaks of the disease. The other half of the March of Dimes funds is retained by county chapters of the National Foundation to carry on year round services to infantile paralysis victims in the 3,070 counties of the United States. George H. La Porte, who joined the foundation in 1941 as director of fund raising publications and public displays and who in 1943 was named

director of the Greater New York fund raising division, has been named director of public relations for the foundation. The first Roosevelt memorial two cent stamp was sold August 24 to Basil O'Connor, president of the foundation, at a special ceremony at Warm Springs, Ga. During the ceremony copies of the stamp were presented to each of the patients at the foundation. The stamp is rectangular, bearing a picture of the "Little White House" on the right and an oval of President Roosevelt on the left.

CANADA

Minister of Health Named Professor.—Dr. Reginald P. Vivian, Port Hope, Ont., minister of health of Ontario, has been appointed to the chair of hygiene and social medicine of McGill University Faculty of Medicine, Montreal, Que., and will take over his activities in September.

The Louis Gross Memorial Lecture.—The eighth annual Louis Gross Memorial Lecture will be delivered at the Jewish General Hospital, Montreal, October 17, by Dr. Paul Dudley White, Boston. His subject will be "The Heart in Hypertension Since the Days of Richard Bright."

The Lamont Memorial Prize.—In memory of his father Dr. Joseph Laurie Lamont, assistant chief medical officer, department of veterans' affairs, Winnipeg, has given \$3,000 to the University of Manitoba, the proceeds of which are to be used to provide the Dr. T. J. Lamont Memorial Prize. The new award will be offered every alternate year for an essay or report on original work or investigation on maternal and neonatal welfare. Competition will be open to graduates in medicine of the University of Manitoba up to the fifth medical year, according to the *Canadian Medical Association Journal*.

CORRECTION

Eradication of Yellow Fever.—The Washington Letter in THE JOURNAL, August 18, contained a statement attributed to Dr. Fabio Carneiro de Mendonca which indicated that UNRRA will shortly inaugurate a world campaign for the eradication of yellow fever and that the disease is quite prevalent in the islands of the Pacific. Yellow fever is not and has not been prevalent in the islands of the Pacific. It is understood that Dr. Mendonca came to this country as a quarantine expert to discuss the extent of the endemic yellow fever area in Brazil. So far as is known, UNRRA does not intend to inaugurate a worldwide campaign to eradicate yellow fever.

Government Services

Two Man Committee to Survey Navy Hospitals

Dr. Basil C. MacLean, professor of hospital administration, University of Rochester School of Medicine and Dentistry, and director of Strong Memorial Hospital, Rochester, N. Y., and William M. Stevenson, New York, who for two years has been director of Red Cross activities in England, Africa and Italy, have been named to a two man committee to survey navy hospital facilities in the country.

Class for Laboratory Technicians

On October 1 the first class for state laboratory technicians on tropical diseases will be opened as part of a program recommended during the November 1944 meeting of the American Society of Tropical Medicine. When petitioned, Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, agreed to sponsor the program of organizing teaching teams, to disseminate material on tropical diseases and, in addition, to form a library of teaching films to be lent to medical societies and other appropriate organizations. Dr. Louis L. Williams Jr., medical director, U. S. Public Health Service, was assigned to formulate plans. The program has recently been transferred to the Office of Malaria Control in War Areas (of the States Relations Division) in Atlanta with Surgeon William S. Boyd, U. S. Public Health Service Reserve, in charge. The Atlanta unit will set up expanded laboratory facilities to offer intensive training in the laboratory diagnosis of tropical diseases, to serve as a diagnostic center for examination of specimens referred by state departments of health and for examinations of diagnostic materials obtained for survey purposes and to make available to technicians in state and local health department laboratories diagnostic and reference materials.

Foreign Letters**LONDON***(From Our Regular Correspondent)*

Aug. 11, 1945.

The Shortage of Doctors and the Coming Winter

Considerable concern is felt in the medical profession about doctors' work in the coming winter, which will have to be performed by a profession depleted by the call of the fighting services. The government has refused to make any promises as to demobilization until the war in the Far East is definitely over. Also the occupation of Germany will require the maintenance of a large army. We have been warned to expect a hard winter with a shortage of coal. People are coming back to their old homes no matter in what condition they have been left by German bombing. Overcrowding is inevitable, for many houses have been completely destroyed and there is great shortage of labor in the building trade. Young married people just starting are unable to obtain homes and have to crowd into the homes of relatives. Psychologic upsets and troubles are bound to arise when some men return to their wives and families after years of absence in the forces. The civilian doctor has had a hard time during the war, but it is felt that his hardest time may be in front of him. Before the war the average number of patients per doctor was 1,800; now it is something like 3,500. The British Medical Association has asked for the release from the forces of at least 5,000 doctors before the winter sets in. One London doctor has said "Last week I was the only doctor in my district for well over 10,000 patients, owing to one of my colleagues being ill and another away on holiday."

Full Time Thoracic Surgeons to Be Appointed by the London County Council

The London County Council proposes to appoint for its hospitals two full time thoracic surgeons, of whom the senior will be known as the chief thoracic surgeon. This position has arisen because the comparatively few surgeons available who are competent to undertake this branch of surgery look with disfavor on the sessional rates of remuneration offered by the council: \$15 a session in hospitals within the London area and \$30 in hospitals and sanatoriums in outer London. During a recent year the total expenditure on fees to five part time thoracic surgeons was \$2,900 for 532 sessions. A salary scale substantially higher than that paid by the council to full time surgeon specialists, \$6,250 rising by increments of \$250 to \$7,500 a year, is considered necessary to attract a thoracic surgeon of adequate experience to the post of chief thoracic surgeon. For him, therefore, a salary of \$10,000 rising by annual increments of \$500 to \$12,500 is proposed. The scale for the other thoracic surgeon will be the same as for the surgeon specialists.

International Congress of Obstetrics and Gynecology to Mark the Bicentenary of the Rotunda Hospital

The Rotunda Hospital, Dublin, was founded in 1745 by a physician, Bartholomew Mosse, and is the oldest maternity hospital in the British Isles. Its fame as a teaching center is widespread, and students come to it from all over the world. Its bicentenary falls this year, but, in consequence of the disturbance produced by the war, celebration is deferred until the second week of July 1947, when an International Congress of Obstetrics and Gynecology will be held in Dublin, primarily under the auspices of the Rotunda Hospital, but with the cooperation of the other two Dublin maternity hospitals. The principal subjects contemplated for discussion are eclampsia, sepsis, obstetric shock, fetal mortality and the modern approach to the problem of sterility.

PALESTINE*(From Our Regular Correspondent)*

JERUSALEM, June 1, 1945.

An Epidemic of Eosinophilic Erythredema, Possibly Early Filariasis

In a lecture held at the Jewish Medical Association in Tel-Aviv on February 21 A. Klopstock and H. Steinitz reported their observations and studies on a syndrome previously unknown in Palestine. Steinitz reported as the clinical features cutaneous manifestations in the form of swellings and blood changes consisting of leukocytosis with eosinophilia.

The cutaneous swellings are red and hot, similar to erysipelas, occasionally also to urticaria or erythema nodosum. They are of a transient nature persisting, however, three to five days and more and migrating over wide areas of the body. The swelling may be small but may also spread over an entire extremity. Localization on the mucous membranes, lymphangitis or enlargement of nodes is rare. The characteristic migration of the swellings may continue over weeks and months, with normal intervals of a few weeks, followed by a recurrence. In some instances the same region was several times attacked.

The swelling is accompanied by severe itching and occasionally pain.

As regards blood changes, there is frequently leukocytosis, as a rule between 12,000 and 15,000, but counts up to 30,000 have been recorded. The number of eosinophils is almost invariably increased, ranging between 15 and 35 per cent but reaching values of over 50 per cent with considerable variations in one and the same case. Numerous eosinophils have also been found in sternal and tissue puncture. The red blood cell count is normal, the blood sedimentation rate normal or slightly accelerated. Examinations of the urine and the feces are normal. Other findings, including x-ray examinations of the chest, reveal nothing out of the ordinary. The temperature is normal or slightly increased (seldom short attacks of fever when swelling starts); nevertheless the majority of patients complain of general discomfort and of inability to attend to their work.

There may be prodromes, as "rheumatic pains" or general malaise. Although the disease is not apparently of a serious nature, general discomfort as well as long standing and special localization of the swellings may have a bad influence on the general condition.

In the discussion a number of physicians were able to confirm these observations, especially Leffkowitz and Sukiennik, whose papers, as well as those of Klopstock and Steinitz, were published in *Harefuah*, March 15. Larger numbers of cases have been noted since November 1944, but sporadic cases certainly have occurred in the past few years. After the first cases had made their appearance in Tel-Aviv and its neighborhood others were reported from Jerusalem and a few from rural settlements. Recently Lyon and Kleinhaus (*Acta med. orient.*, May) gave an account of their observations in Jerusalem, among them 2 cases with transitory pulmonary infiltrations (Loeffler's syndrome). The total number of cases in Palestine may amount to about 200. Children are only exceptionally attacked.

According to Klopstock, who studied the epidemiologic aspects, it is certain that we are dealing with an allergic phenomenon and that the clinical picture is strikingly similar to "Calabar swelling," the allergic phase of filariasis. It should be borne in mind that war conditions have increased the possibilities of infection with filariae in this country, which until now had been free from this disease. But so far no microfilariae could be found in spite of repeated examinations of the blood and of tissue puncture; biopsies did not reveal parasites either. Skin tests could not so far be carried out, but it is to be hoped that filaria antigen will be available in this country in the near future; only then will it be possible to decide whether or not

this disease constitutes an early stage of a filaria infection. At present the etiology remains obscure. For practical purposes Klopstock and Steinitz suggest the name of eosinophilic erythredema for this disease.

BUENOS AIRES

(From Our Regular Correspondent)

July 16, 1945.

Effect of Alloxan on Glycemia in Dogs

Dr. B. A. Houssay recently lectured before the Argentine Society of Biology. He reported results of experiments which were carried on with the collaboration of Drs. O. Orias and J. C. Sara. The intravenous injection of alloxan in a dose of 100 mg. for each kilogram of body weight produces early glycemia, which equals that which follows the removal of the adrenals or the section of the great and lesser splanchnic nerves. Glycemia does not increase, however, if the animals are deprived of the liver. Early hyperglycemia is followed by lowered glycemia, which lasts for several hours. It also occurs in dogs recently deprived of the pancreas, but it does not occur in diabetic dogs. Terminal hyperglycemia occurs. It shows degeneration of the islands of Langerhans. Early hyperglycemia is higher than that which follows total renewal of the pancreas. Twenty-four hours after administration of the injection of alloxan the pancreas of 5 of every 6 dogs does not secrete insulin. The adrenal incapacity persists even in the period of transient hypoglycemia. The liver seems to play the main role in the changes of glycemia, namely an early phase of hyperglycemia, an intermediate phase of hypoglycemia and a final phase of hyperglycemia.

Potassium Thiocyanate in Arterial Hypertension

In a paper read before the Ateneo del Hospital Militar Central of Buenos Aires Drs. Ernesto A. Rottjer and Alfredo C. Carreras reported good results from the administration of sodium thiocyanate in 9 cases of essential hypertension and 1 case of malignant hypertension due to diffuse postglomerulonephritis. There was a remission of symptoms in all cases. Arterial tension returned to normal in all cases. Toxic symptoms did not appear. The administration of sodium thiocyanate calls for a careful clinical examination of the patient before administering the treatment. In the course of the treatment determinations of the amount of the drug in the blood should be made twice a week. Repeated clinical examinations of the patient and determinations of the arterial blood pressure should be performed.

Dental Care of Children

Dental care for children of school age and adolescence is obligatory in Argentina. Children on entering school have a dental examination, the results of which are recorded on the proper card and the latter is kept on file. The examinations are repeated periodically. The parents are notified when the children require dental care, which can be given by the family dentist or free in the dental national centers. Parents who break the law are fined 20 to 50 Argentine pesos (\$5 to \$12). Teachers may be penalized with a fine of 100 Argentine pesos (\$25). Repeated infraction is punished with temporary closure of the school if private or with discharge of the teacher if the school is operated by the government.

Measures to Increase Birth Rate

The Minister of Internal Affairs recently appointed a committee with Dr. Manuel A. Viera as president to study and remedy the causes of the lowering of the birth rate and to stimulate the creation of large families in the country. Several problems concerned with the welfare of children will be studied. Special care is to be given to improve the economic conditions of parents of large families in order to provide the children with the proper housing, food, hygiene and cultural conditions.

Congress of Internal Medicine

The second reunion of the Society of Internal Medicine of the Asociación Médica Argentina was held during the last week of October 1944. Dr. Egidio S. Mazzei was the president. The official topic was chemotherapy (sulfonamides and penicillin) in infections in internal medicine. Dr. Mario Soto spoke on pharmacology of sulfonamides. Drs. Mariano R. Castex and Eduardo L. Capdehourat spoke on sulfonamide therapy in chronic infections of the respiratory tract. Dr. Egidio S. Mazzei spoke on sulfonamide therapy in endocarditis lenta. Drs. Paul D. White, Marion W. Mathews and Elwyn Evans reported the results of sulfonamide therapy in 85 cases of subacute bacterial endocarditis in the Massachusetts General Hospital during the years 1939 to 1944. Drs. Julio Palacio, Francisco Arrillaga, Nicolás Romano, Rodolfo A. Eyherabide, Victorio Monteverde, Diego Taylor Gorostiaga, Alberto Maggi, Carlos Alberto Videla and Guido Costa Bertani discussed the therapeutic uses of sulfonamide. Dr. Felipe Morán Miranda spoke on renal complications of sulfonamide therapy. Dr. B. Varela Fuentes of Montevideo spoke on sulfonamide therapy in biliary infections.

Control of Publicity on Cancer

A law was recently passed according to which all reports of the use of drugs or treatments for curing cancer should be made to the National Department of Public Health before being made public. The law was based on the harm which may result to the laymen in neglecting cancer for a useless treatment. The authorities of public health all through the country have given radio lectures discussing the scientific treatment of cancer and advising people to stay away from charlatans.

Professional Theses

The council of the Faculty of Medicine of Buenos Aires recently resolved that physicians graduated from the medical school can practice either with a certificate in which it is stated that they have successfully completed the studies of the curriculum and done the necessary duties, or with an M.D. diploma. The diploma is given only to students who successfully complete the studies of the curriculum and who present a "thesis of doctor in medicine" with results of scientific research as carried on during the studies in the medical school.

New Department of Public Health

The Section of Rheumatology, Cardiovascular Diseases and Neoplasms, a branch of the Division of Social Diseases, which is a department of the National Department of Public Health, was recently created. The Division of Social Diseases includes sections on cancer, leprology, venerology, mental diseases and toxicomania, rehabilitation of invalids and rheumatology, and cardiovascular diseases and neoplasms.

Marriages

DAVID M. SWITZER JR., North Little Rock, Ark., to Miss Mary Dorothy Walker of Meridian, Miss., June 3.

ALLEN MANSFIELD COLLINGSWORTH, Atlanta, to Mrs. Janice Fuquay Byers of Montgomery, Ala., July 14.

JOSEPH BRISBANE to Miss Marguerite Krock, both of New York, in Greenwich, Conn., March 10.

WILLIAM A. BUTCHER, Adrian, Mo., to Miss Elaine Carolyn Bottomley of Philadelphia, May 12.

LINDSAY KERR BISHOP, Nashville, Tenn., to Miss Marianne Coleman of Maryville, July 17.

DAVID MENDELL, Houston, Texas, to Miss Miriam Wydra of Washington, D. C., June 27.

MARK G. RISSE, Emerald, Pa., to Miss Mary Alice Christman of Allentown, June 16.

Deaths

Lewis Alexander Golden † New Orleans; University of Michigan Medical School, Ann Arbor, 1929; born in Riga, Baltic State, Dec. 31, 1903; assistant professor of neuropsychiatry at the Tulane University of Louisiana School of Medicine; served as teaching assistant in medicine, research fellow in medicine and instructor in medicine at the Tufts College Medical School in Boston; served a rotating internship at the Hillman Hospital in Birmingham, Ala., and a residency in medicine at the Boston Dispensary, where he had been assistant physician in the medical clinic and assistant physician in the nervous and mental department; formerly assistant physician at the Diagnostic Hospital, New England Medical Center; for six months clinical clerk at the National Hospital for Nervous Diseases in London, England; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the state board of institutions; member of the Southern Psychiatric Association and the American Psychiatric Association; served as secretary-treasurer of the New Orleans Society of Neurology and Psychiatry; at one time graduate assistant (teaching), neurologic department, Massachusetts General Hospital and Harvard Medical School in Boston; on the staffs of the Ochsner Clinic, De Paul Sanitarium, Charity Hospital and the Touro Infirmary, where he died June 22, aged 41, of renal lithiasis and uremia.

George Argale Harrop † Princeton, N. J.; Johns Hopkins University School of Medicine, Baltimore, 1916; born in Peru, Ill., in 1890; vice president of E. R. Squibb & Sons and director of the Squibb Institute for Medical Research in New Brunswick; at one time an intern and assistant resident physician at Johns Hopkins Hospital; for a time served on the faculty of Columbia University and the Peiping Union Medical College in China; from 1925 to 1938 associate professor of medicine at his alma mater, where he had been in charge of the chemical laboratory and work on diseases of metabolism and endocrinology; specialist certified by the American Board of Internal Medicine; fellow of the American Scandinavian Foundation and the American College of Physicians; member of the Association of American Physicians, American Society for Clinical Investigation, American Society of Biological Chemists, Society for Experimental Biology and Medicine, Société Biologique de Paris, New York Academy of Medicine and the American Clinical and Climatological Association; author of "Management of Diabetes" 1925 and "Diet in Disease" 1930; died in the Stephen V. Harkness Pavilion for Private Patients, Medical Center, New York, August 4, aged 54.

Thomas J. Williams † Chicago; State University of Iowa College of Medicine, Iowa City, 1908; born in Colwyn Bay, Wales, May 8, 1882; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; licentiate and fellow of the Royal College of Surgeons of Edinburgh, Scotland, in 1914; at one time health officer of Hiteman, Iowa; formerly professor of ophthalmology at the Illinois Post-Graduate Medical School; at the beginning of World War I was with the British Hospital Service, becoming a captain in the medical corps of the U. S. Army when the United States entered the war; on the consulting staff in eye, ear, nose and throat of the Illinois Masonic Hospital; attending surgeon to St. Francis and Evanston hospitals, both in Evanston, Ill.; died at his home in Evanston, Ill., August 10, aged 63, of coronary thrombosis.

John Cameron McCluer † Alexandria, Va.; University of Virginia Department of Medicine, Charlottesville, 1932; interned at the De Paul Hospital in St. Louis and the Camden-Clark Memorial Hospital in Parkersburg, W. Va.; past president of the Alexandria Medical Society; member and director of the city tuberculosis association, serving as a member of its board of trustees and medical advisory staff; for five years a member and for two years president of the city board of health; member and past president of the staff of the Alexandria Hospital; on the courtesy staffs of the Doctors Hospital, Emergency Hospital and the Garfield Memorial Hospital, Washington, D. C., where he died June 29, aged 39, of lymphoid pneumonia.

Louise Lockwood Culver, Sandwich, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; died July 14, aged 75, of chronic myocarditis.

Clark Bradshaw Denny † Oakdale, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1911; died in the Mercy Hospital, Pittsburgh, April 27, aged 65, of pneumonia.

Martin Icove Green † San Francisco; College of Physicians and Surgeons of San Francisco, 1921; member of the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; co-founder and chief of staff, Greens' Eye Hospital; died in the Mount Zion Hospital June 30, aged 46, of endothelial sarcoma.

Louis Benjamin Heimer, Philadelphia; University of the South Medical Department, Sewanee, Tenn., 1904; Jefferson Medical College of Philadelphia, 1905; formerly affiliated with the Northwestern General and American Stomach hospitals; died June 22, aged 65, of cerebral embolism.

Lewis George Hildreth, Marlboro, N. H.; Kentucky School of Medicine, Louisville, 1892; member of the American Medical Association; school physician and health officer; died in Keene June 25, aged 77, of arteriosclerosis, diabetes mellitus and uremia.

Wesley J. Irvine, Manawa, Wis.; University of Maryland School of Medicine, Baltimore, 1892; member of the American Medical Association; honorary member of Waupaca County Medical Society; member of assembly, state legislature, from 1905 to 1907; served during World War I; president of the Farmers State Bank of Manawa; died June 6, aged 78, of cerebral thrombosis.

Archibald Charles Kappel † Franklin, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1913; member of the city council; died June 4, aged 56, of heart disease.

Daniel Kessler, Weston, W. Va.; University of Louisville Medical Department, Louisville, Ky., 1891; member of the American Medical Association; honorary member of the West Virginia State Medical Association; one of the founders of Camp Gauley in Webster County; died July 30, aged 81, of heart disease.

Reinoehl Knipe, Norristown, Pa.; Medico-Chirurgical College of Philadelphia, 1898; member of the American Medical Association; served as chief of the state tuberculosis clinic; for many years chief physician for the Montgomery County prison; on the staffs of the Montgomery and Sacred Heart hospitals; died June 21, aged 77, of heart disease.

Frank Xavier Koltes † Medical Director, Captain, U. S. Navy, retired, Milwaukee; Rush Medical College, Chicago, 1903; entered the medical corps of the U. S. Navy as a lieutenant (jg) on May 21, 1907; became a captain on May 11, 1930; retired April 1, 1938 for incapacity resulting from an incident of service; fellow of the American College of Surgeons; died in the U. S. Naval Hospital, San Diego, July 14, 1944, aged 66, of coronary heart disease.

Elmer Lee, New York; Missouri Medical College, St. Louis, 1882; died in the Cincinnati Sanitarium, Cincinnati, June 13, aged 89, of generalized arteriosclerosis and senility.

Joseph Leo, New York; University and Bellevue Hospital Medical College, New York, 1910; died June 28, aged 65, of heart disease.

Fred Irvin Longstreet, Montville, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1899; died in the All Souls Hospital, Morristown, June 14, aged 69, of peritonitis from ruptured diverticulum of the colon.

Inte Ignaz Lourie, Brooklyn; Long Island College Hospital, Brooklyn, 1904; also a pharmacist; formerly affiliated with the Post-Graduate, Trinity and Israel Zion hospitals; died in the Long Island College Hospital June 21, aged 69, of heart disease.

Albert Emanuel Loyer, New Washington, Ohio; Medical College of Ohio, Cincinnati, 1895; served as surgeon to the Lake Erie and Western Railroad; died June 25, aged 72, of cerebral hemorrhage and hemiplegia.

John Neal Martin † Unionville, Mo.; Chicago College of Medicine and Surgery, 1916; served as county health officer; died June 10, aged 52, of injuries received in an automobile accident.

James Claude McLallen, Cicero, Ill.; Jenner Medical College, Chicago, 1909; died in St. Elizabeth's Hospital, Chicago, June 14, aged 67, of coronary thrombosis.

Walter Guy McLeod † Southern Pines, N. C.; Baylor University College of Medicine, Dallas, Texas, 1921; interned at the Baylor Hospital in Dallas and the St. Francis Hospital in Jersey City, N. J.; died in the Mountain Sanitarium and Hospital, Fletcher, June 23, aged 54, of myocardial insufficiency.

Beriah Alembert Montgomery † Grove City, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1890; served during World War I; major, medical reserve corps, U. S. Army, not on active duty for eighteen years.

member of the board of education; served on the staff of the Grove City Hospital, where he died July 21, aged 72, of coronary thrombosis.

Watson Alexander Moore, Cleveland, Mo.; Medical-Chirurgical College of Kansas City, Mo., 1904; member of the American Medical Association; served as president of the board of education and as postmaster of West Line; for many years member of the board of education in Cleveland; died in Kansas City June 14, aged 66, of generalized arteriosclerosis and coronary thrombosis.

Benjamin M. Nicholson, Enfield, N. C.; University College of Medicine, Richmond, 1910; member of the American Medical Association; honorary member of the Medical Society of the State of North Carolina; died in the Rocky Mount Sanitarium, Rocky Mount, June 11, aged 56, of cardiovascular renal disease.

Charles Julius Oppenheim • Forest Hills, N. Y.; Cornell University Medical College, New York, 1923; served on the staffs of the Beekman and Lenox Hill hospitals, New York; died June 24, aged 50, of hypertension and arteriosclerosis.

Ralph V. Overton • Winner, S. D.; Lincoln (Neb.) Medical College of Cotner University, 1902; part owner of the Winner General Hospital; died in Sioux City, Iowa, June 20, aged 65, of coronary thrombosis and hypertensive heart disease.

William B. Page, Goshen, Ind.; Hering Medical College, Chicago, 1896; formerly a medical missionary in India; served during World War I; past president of the Elkhart County Medical Society; died June 14, aged 74, of coronary thrombosis.

Charles Walter Patterson, Crowder, Miss.; Mississippi Medical College, Meridian, 1907; died in Grenada June 22, aged 70, of cerebral hemorrhage.

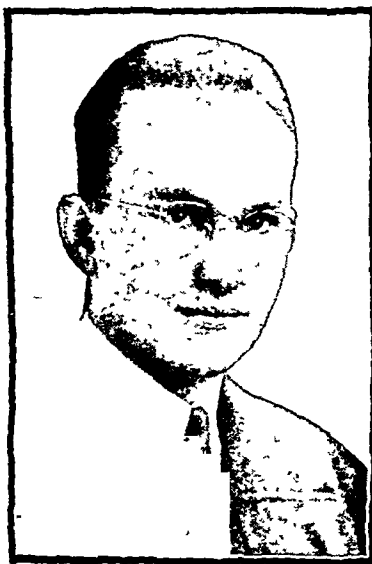
Ira E. Perry • North Manchester, Ind.; Medical College of Indiana, Indianapolis, 1905; served as councilor of the Eleventh District Medical Society; for many years health officer of Wabash County; at one time county coroner; past president of the Wabash County Medical Society; died June 18 at his summer home on Webster Lake, aged 72, of heart disease.

Peter Heije Poppens • Princeton, Ill.; Rush Medical College, Chicago, 1920; past president of the Bureau County Medical Society; on the staff of the Julia Rackley Perry Memorial Hospital; interned at the Presbyterian Hospital in Chicago; died June 8, aged 53, of embolism as the result of an automobile accident.

Frank Edward Potter, Middletown, Conn.; College of Physicians and Surgeons, New York, 1889; member of the American Medical Association; died in East Hampton May 23, aged 90, of coronary thrombosis.



LIEUT. COMDR. CLYDE H. BROWN
(MC), U.S.N.R., 1902-1945



CAPT. DUANE HAROLD CALLISTER
M. C., A. U. S., 1913-1945



LIEUT. JAMES ALBERT GAFFORD JR.
(MC), U.S.N.R., 1906-1945

Theodore Herbert Page, Peoria, Ill.; Rush Medical College, Chicago, 1897; served overseas during World War I; died in Tucson, Ariz., June 11, aged 70, of carcinoma of the colon.

Henry G. Reemsnyder, Ephrata, Pa.; Jefferson Medical College of Philadelphia, 1881; member of the American Medical Association; at one time member of the board of health; died in St. Joseph's Hospital, Lancaster, May 21, aged 84, of

KILLED IN ACTION

Clyde Hulee Brown • Cullman, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1926; interned at the Knickerbocker Hospital in New York; member of the Medical Society of the State of New York; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve on May 12, 1942; assigned to the Naval Hospital in Newport, R. I.; in command of a Marine Corps Mobile Hospital unit; died in Okinawa April 12, aged 42, of fragment bomb wound of the head.

Duane Harold Callister, Fillmore, Utah; Rush Medical College, Chicago, 1942; interned at the Dr. W. H. Groves Latter-Day Saints Hospital in Salt Lake City; began active duty as a first lieutenant in the medical corps, Army of the United States, on Aug. 24, 1943;

later promoted to captain; killed in action in Belgium January 9, aged 31.

James Albert Gafford Jr. • Huntington Park, Calif.; Stanford University School of Medicine, San Francisco, 1931; fellow of the American College of Surgeons; interned at the Los Angeles County General Hospital, where he served a residency and had been junior attending gynecologist; served as instructor in obstetrics and gynecology at the University of Southern California School of Medicine; member of the staff of the Methodist Hospital of Southern California, Los Angeles; began active duty as a lieutenant in the medical corps, U. S. Naval Reserve, on Feb. 15, 1943; assigned to Camp Pendleton in Oceanside; since January 2 junior medical officer on the U. S. S. *Birmingham*; died in the Pacific area May 4, aged 33, of extreme multiple injuries.

hypertensive arteriosclerotic heart disease and chronic glomerular nephritis.

Carl Eugene Richardson * Franklin, Mass.; Tufts College Medical School, Boston, 1907; medical examiner in Norfolk County for twenty-one years; member of the school board; trustee of the Benjamin Franklin Savings Bank; died July 30, aged 61, of coronary thrombosis.

William R. Riley, Everton, Mo.; St. Louis College of Physicians and Surgeons, 1897; chairman of the Dade County Central Democratic Committee; for many years president of the board of education; served on the staffs of the Burge Hospital, Springfield Baptist Hospital and St. John's Hospital, Springfield, where he died May 15, aged 77, of heart disease.

Leroy L. Sawyer, Greatbridge, Va.; University of Maryland School of Medicine, Baltimore, 1890; a director of the Merchants and Planters Bank in Norfolk; died June 13, aged 80, of pneumonia and heart disease.

Albert F. Schwenke, Lancaster, Ohio; Starling Medical College, Columbus, 1889; died June 2, aged 80, of heart disease and arteriosclerosis.

Charles James Search, Brooklyn; University of Wooster Medical Department, Cleveland, 1892; member of the American Medical Association and the American Roentgen Ray Society; at one time instructor in physiology at the Long Island College

Myron Herbert Simmons, Oak Hill, N. Y.; Albany Medical College, 1880; served as president and member of Orange Memorial Hospital Dispensary staff in Orange, N. J.; in 1944 received a gold decoration from the alumni association of Albany Medical College in recognition of his fifty years of meritorious service to humanity; died July 16, aged 87, of congestive heart failure.

Tilden H. Singleton, Bowling Green, Ky.; Hospital College of Medicine, Louisville, 1904; member of the American Medical Association; member of the county board of health; on the staff of the City Hospital; died June 6, aged 68, of coronary thrombosis.

John Yeoman Sinton * Imlaystown, N. J.; Medico-Chirurgical College of Philadelphia, 1908; for many years school physician; secretary of the Upper Freehold Township Board of Health; served on the staff of St. Francis Hospital in Trenton; died May 31, aged 81, of coronary occlusion.

Ernest William Slater, Jewell, Iowa; Northwestern University Medical School, Chicago, 1906; died May 24, aged 72, of acute dilatation of the heart.

Thomas O. Smith, Wilsonville, Ala. (licensed in Alabama in 1907); member of the American Medical Association; member of the school board and city council; died June 17, aged 69, of cerebral hemorrhage.



LIEUT. THEODORE BOYT
(MC), U.S.N.R., 1912-1944



CAPT. ARTHUR JAMES LEONARD
M. C., A. U. S., 1914-1944



LIEUT. WILLIAM ASHBY DAVIS
M. C., A. U. S., 1916-1944

Hospital; served on the staffs of St. John's Hospital and the House of St. Giles the Cripple; died June 5, aged 81, of arteriosclerosis.

Mark Shrum, Lynn, Mass.; University of Louisville (Ky.) Medical Department, 1894; at one time a member of the board of registration in medicine; died June 30, aged 76, of intestinal obstruction.

Robert Edward Whitehead * Kempsville, Va.; Medical College of Virginia, Richmond, 1897; served as president of the Princess Anne County Medical Society and as councilor of the Second District of the Medical Society of Virginia; member of the Seaboard Medical Society; member of the county draft board during World Wars I and II; died in a hospital at Norfolk July 2, aged 72, of cerebral hemorrhage.

KILLED IN ACTION

Theodore Boyt, South Amboy, N. J.; Long Island College of Medicine, Brooklyn, 1939; served an internship at the Jersey City Hospital in Jersey City and later became resident physician at the Woman's Hospital in Detroit; commissioned a lieutenant (jg) in the medical corps, U. S. Naval Reserve, on June 5, 1942; promoted to lieutenant on May 1, 1943; following service and special training in this country, assigned to the destroyer U. S. S. *Buck*; participated in the Sicilian invasion and received the European-African-Middle Eastern Area campaign ribbons and the Purple Heart; while on an anti-submarine patrol south of the Isle of Capri the *Buck* was torpedoed and sunk; at first reported missing in action; aged 32; presumptive date of death Oct. 10, 1944.

Arthur James Leonard, Pittsburgh; University of Pittsburgh School of Medicine, 1941; interned at the Allegheny General Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on Aug. 1, 1942; promoted to captain; served in the First Division; served through the African and Sicilian campaigns; killed in action in France July 3, 1944, aged 29.

William Ashby Davis, Agricola, Va.; University of Virginia Department of Medicine, Charlottesville, 1942; interned at the Roper Hospital in Charleston, S. C.; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 16, 1943; killed in action in North African area April 20, 1944, aged 27.

Bureau of Investigation

NEW NAMES FOR OLD SWINDLES

Mail-Order Defrauders Are Also Repeaters

Fraud orders issued by the United States Post Office are really effective—so far as the trade styles and names used at the time of the order are concerned. Circumvention therefore requires the use of new trade styles and names—but this fortunately results in the issuance of supplemental orders by the Post Office Department as indicated in the following paragraphs:

More Edward S. Hidden Frauds.—In this department of *THE JOURNAL* Dec. 20, 1941, page 2188, there appeared under the title "Edward S. Hidden and Some Fakes" a detailed account of fraud orders that had been issued by the Post Office Department against two earlier swindles perpetrated by Hidden. One was a "fat cure" variously known as "Slim-A-Lax" and "Tab Thins." This business he operated under the names Madison Chemical Company, Tab Thins Company, Slim-A-Lax Company, Riverside Chemical Company and C. N. Talcott. The other was an alleged baldness cure called "Nuhair," in the sale of which he did business under his own name and also as C. J. Walton, Nuhair Company and Nu Hair Company. Like some others who were denied the use of the mails by the Post Office Department, Hidden stayed in business simply by dropping his original trade styles and adopting new ones. He appears to have organized the Cooper Distributing Company and the Carolina Chemical Company, both of Charleston, S. C. Under the latter title there were also branches at Pitcairn and Pittsburgh, Pa., Detroit, Quincy, Ill., and Greensboro, N. C. Under these various trade styles Hidden promoted "Nu-Hair" for growing hair, with an accessory "slicking" cream, besides "Lax," a laxative mixture for reducing, and "Muscl-Free," a liniment to be used in connection with certain powders for various forms of rheumatism. Again Hidden was ordered by the Post Office Department to show cause why he should not be debarred from the mails for obtaining money through those channels by means of false and fraudulent pretenses, representations and promises. At the hearing a government chemist testified that Nu-Hair was a hydro-alcoholic liquid containing 10 per cent of mineral oil by volume and 9.5 per cent of isopropyl alcohol, colored pink; that the Lax treatment consisted of some pink tablets composed of laxatives, and some white ones, each apparently containing about ½ grain of thyroid; and that Muscl-Free consisted of a bottle of liniment for external use and some powders to be taken internally. The witness testified that he had found the liniment to contain the ingredients declared on the label, namely, isopropyl alcohol and methyl salicylate, but that his findings as to the composition of the powders (acetylsalicylic acid, sodium salicylate and milk sugar) differed from that declared on the label, which listed caffeine and calcium salicylate in addition. An expert medical witness for the government testified at some length regarding the worthlessness of these "cures," and on Sept. 4, 1944, a fraud order was issued against Edward S. Hidden, the Cooper Distributing Company, Carolina Chemical Company, and the branches of the latter in the various cities mentioned. On the same date another fraud order was issued against the Lax Company, Reducing Specialists; D. Rodriguez, Weight Consultant, and the Charleston Vitamin Company, under which names Hidden was operating his scheme from Mexico City. By the order Hidden was denied further use of the United States mails. As might be expected, he began to operate from another Mexican city, Nuevo Laredo, under one of the trade styles he had used in the foregoing scheme, Lax Company. A month later—on Oct. 3, 1944—the Post Office Department issued a fraud order also against this name, but it is a sporting proposition that ere long he will be heard from again in Mexico, with the same old stock in trade but a new title and address.

Trans-Continental Products.—This was a follow-up of another mail-order swindle, which originated in Chicago with one Eli Siegel, M.D., and which he promoted under such names as Chicago Medical Institute, Dr. Siegel's Medical Products, Chicago Medical Offices and Globe Surgical Institute. Dr. Siegel holds a diploma from a medical school of questionable standing. In *The Journal*, Jan. 22, 1938, page 303, appeared a long account of the case in which the Post Office Department in 1937 issued a fraud order against Siegel personally, and his concern "Dr. Siegel Medical Products." As the article stated, he had appealed to sexual neuroasthenics by offering certain drugs and appliances that he claimed would make them "full of vim, vigor and vitality" and cause them to "feel thirty years younger." He called his drug combinations "Revivo" and "Control-O" and his appliance the "Great Mechanical Developer," which device the government declared was merely a mechanical masturbator. On Aug. 28, 1940, on application of Dr. Siegel and what appeared to be evidence that he had abandoned his mail-order scheme, the fraud order was revoked to the extent of permitting him to receive mail addressed personally to him. Later, however, another enterprise was launched by Siegel's wife, under the names U. S. M. Products, U. S. M. Products Company, U. S. Medical Products, and U. S. Medical Products Company, Chicago, to sell two nostrums through the mails. These were "Firm-X," to restore "pep" to all men over forty years old, overcome all symptoms of old age and enable users to maintain their youthful vigor, energy and vitality; and "Stop-X," represented to overcome all kidney and bladder weaknesses. When a new Post Office

fraud order threatened, Mrs. Siegel attempted to circumvent it by filing an affidavit that the scheme had been discontinued and that the Chicago postmaster was to return to writers any mail addressed to her concern, with the stamped notation "Out of business." Soon afterward, however, the Post Office Department learned that she was again using the mails in a questionable manner, this time using the name Trans-Continental Products, and accordingly the Department directed her to show cause why a fraud order should not be issued against that name. At the hearing of the case it was brought out that Mrs. Siegel was now calling her products "Peps Regular," "Peps Special" and "Peps for Women" or "Pepson" and promoting them for lost sexual power in men and women, sending out literature similar to that used by Dr. Siegel in the earlier enterprise. An expert medical witness for the Post Office Department testified that in view of the composition of the nostrums as reported by a government chemist, they did not fulfil the claims made for them. The business was therefore judged a scheme for obtaining money, through the mails by means of false and fraudulent pretenses, representations and promises, and since investigation had shown that the apparently fictitious name John Dreyer had been employed in operating the business, a fraud order was issued Sept. 11, 1944, against John Dreyer, the Trans-Continental Products, and their officers and agents, debarring them from further use of the mails.

Correspondence

GAMMA GLOBULINS

To the Editor:—In a communication (July 7, p. 750) an editorial of *THE JOURNAL* (June 9, p. 442) was criticized for giving "the impression that only until recently has the origin of the globulins remained uncertain." According to Dr. Hobart A. Reimann, numerous investigators in the last fifty-three years have held the view that globulins originated in the leukocytes.

We wish to point out that the literature referred to by Dr. Reimann (Reimann, H. A.; Medes, G., and Fisher, L.: *The Origin of Blood Proteins, Folia haemat.* 52:187, 1934) is not concerned with gamma globulins; it deals almost entirely with fibrinogen, which is now generally believed to be formed in the liver. Only two authors are quoted to have suggested that some globulins as well as fibrinogen were possibly produced by leukocytes, while one author believed that all plasma proteins arose from the disintegration of leukocytes and possibly also from the platelets and other cells in contact with the blood. When studying this problem experimentally in rabbits, Reimann and his associates were unable to find "decisive evidence to support the leukocytic origin of blood proteins or that the bone marrow is the chief site of their origin." When examining the cells of experimental pleural exudates they found "that certain substances in the leukocyte extracts were salted-out at various concentrations of Na₂SO₄, which are known to throw down various protein fractions." They admitted that this observation was not sufficient to "identify these substances with certainty," as they failed to give the usual immunologic and clotting reactions. Reimann and his associates came to the conclusion that "thus far, therefore, it is impossible to designate either the liver or other hemopoietic organs, the leukocytes or the erythrocytes as the chief or sole sources of fibrinogen."

Dr. Reimann's communication, therefore, does not reflect on the validity of the various recent editorials of *THE JOURNAL* on the production of antibodies and other gamma globulins. It seems that our own observations (Ehrich, W. E., and Harris, T. N.: *J. Exper. Med.* 76:335 [Oct.] 1942. Harris, T. N.; Grimm, E.; Mertens, E., and Ehrich, W. E., *ibid.* 81:73 [Jan.] 1945) as well as those of White and Dougherty (Dougherty, T. F.; Chase, J. H., and White, A.: *Proc. Soc. Exper. Biol. & Med.* 57:295 [Nov.] 1944. White, A., and Dougherty, T. F.: *Endocrinology* 36:207 [March] 1945) and of Edward H. Kass (*Science* 101:337 [March 30] 1945) are the only ones which indicate that antibodies and other gamma globulins may be formed by the lymphocytes.

WILLIAM E. EHRLICH, M.D.

T. N. HARRIS, M.D.

Philadelphia.

VESICULOPUSTULAR ECZEMA

To the Editor:—Probably two thirds of the patients seen on dispensary service in the field are suffering from some type of skin disease. It is important to recognize and treat these cases early, for secondary infection occurs readily in the tropics as a result of the humidity and lack of bathing facilities noted among the front line outfits.

During the past two years I have had the opportunity to observe a considerable number of cases of vesiculopustular eczema. There is no conclusive evidence that micro-organisms act as a primary cause, but they frequently aggravate the condition as secondary invaders. The lesions usually present themselves as small maculopapular eruptions, located usually in the axillary regions, the thorax and the anterior and anterolateral abdominal walls. These lesions cause mild pruritus associated with a "burning sensation" when the lesions are found in the axillas. After several days the small macular areas become prominent as larger vesicles filled with a clear fluid. Unless the lesion is treated at this stage the vesicles become pustular in nature.

In the macular stage the treatment is purely symptomatic, calamine lotion being used on the body surfaces and zinc oxide applied to the lesions in the axillas. As soon as the lesions become vesicular the vesicle should be removed and touched with a small amount of Dalibour's solution (copper sulfate, zinc sulfate and gentian violet). The astringent action of the latter quickly forms a thin film over the lesion, and desquamation occurs, usually leaving an area of depigmentation. The pruritus and slight pain caused by the lesion is relieved immediately on first application. No fungi or bacteria were found in the vesicular lesions, and when the latter became pustular, staphylococci and streptococci were the predominant organisms found.

I mention this type of treatment mainly because of the rapidity of cure obtained, and hence there is less chance of overtreatment, which so often occurs in treating diseases of the skin.

PAUL A. NEWTON, Captain, M. C., A. U. S.
Med. Det., 129th Infantry, APO 37,
P. M., San Francisco, California.

PNEUMONIA AND RESPIRATORY DISEASE
WITH A POSITIVE WASSERMANN TEST

To the Editor:—In the abstract from the article in *Medicine* (23:359 [Dec.] 1944) by Davies in *THE JOURNAL*, February 24, page 489, on false positive serologic tests for syphilis, Davies mentions the possibility of positive tests of this kind for certain types of atypical pneumonia. Moreover McNeil in the *American Journal of the Medical Sciences* (209:48 [Jan.] 1945) mentions his observations of atypical cases of pneumonia with strongly positive Kahn tests. Will you allow me in this connection to refer to a paper published in the *Helvetica medica acta* (7:497 [March] 1941) which may have escaped the notice of the authors, probably because of difficulties of communication caused by the war. After the observation of some sporadic cases by Lindau and Fanconi, I was able at that date to report 9 endemic and 10 additional sporadic cases and to show that one can speak of a nosologic entity with a characteristic symptomatology. I named the disease pneumonia with positive Wassermann test. Since that time it has been possible to supplement the symptomatology with more than 50 further observations (Gsell, Steinmann, Rossier, Pfisterer).

In most cases the disease shows a remarkably torpid course. Generally the temperature reaches only subfebrile values; high fever is found but rarely, whereas cases without any rise of temperature have been observed. Characteristic physical signs

are those of a bronchitis such as dry and moist rales combined with signs of circumscribed consolidation. This can be important as a means of distinction from other atypical forms of pneumonia. The sedimentation rate of the red blood corpuscles is generally considerably elevated. The white blood cell count is normal. The percentage of polymorphonuclear cells is not increased, but there is a shift to the left. X-ray examination shows mostly one single, rarely more than one, very mottled not very dense shadow. Every lobe of the lung can be affected. The corresponding bronchopulmonary lymph nodes are often enlarged. Months can pass before the infiltration has entirely disappeared. The serologic tests remain positive approximately as long as the signs of consolidation last, but a strict parallel cannot be drawn. The serologic reactions can be more or less strongly positive.

Some patients present symptoms of the upper part of the respiratory tract including sinusitis without definite infiltrations of the lung. Therefore one might also speak of a respiratory infection with positive Wassermann test.

The contagiousness is striking. Endemics have been found in military units and in families. Etiologically a virus can be presumed, the bacteriologic examination of the sputum giving no clear results.

As to differential diagnosis, tuberculosis and syphilis in the first place must be excluded, which, given a sufficient time of observation, presents no difficulties because of the spontaneous disappearance of the symptoms.

R. HEGGLIN,
University of Zurich,
Switzerland.

EARLY DIAGNOSIS OF KALA-AZAR

To the Editor:—I was greatly interested to read the report of a case of kala-azar in an Italian prisoner by Colonel Sweeney, Major Friedlander and Lieutenant Colonel Queen in *THE JOURNAL* for August 4. The authors are to be congratulated on an excellent case study, but it seems unfortunate that the diagnosis was not made earlier and that splenectomy was necessary to make the diagnosis. This is undoubtedly due to the fact that physicians in the United States and medical officers in the armed forces are generally unfamiliar with this disease, which is not endemic in this country.

Since a number of cases of kala-azar have occurred in our armed forces, and since, because the incubation period may be as long as fifteen months, some symptoms are likely to develop even after discharge to civilian life, I should like to call attention to a few points which may assist in earlier diagnosis and thus be an aid both to the physician and to the patient.

Kala-azar should be suspected as the first probability, instead of the last, in any person who has been in one of the three great endemic areas and who presents a clinical picture of spiking daily fever, malaise and leukopenia. The three great endemic areas are the Mediterranean area, northeastern India and China north of the Yangtze River. The fever often, although not always, shows more than one spike of rise in twenty-four hours. The spleen may not be palpable until two months after the onset of symptoms. There may be no anemia, no abnormal rise of blood globulin, no prolongation of bleeding time or coagulation time, and the serum aldehyde test may be negative. Parasites cannot be found in the circulating blood. Malaria can be easily excluded by careful blood examination, and typhoid can be excluded by the usual tests.

The only method of making an early diagnosis is to find the Leishman-Donovan bodies in puncture material from the organs which become most heavily infected. Bone marrow puncture should be performed first, an attempt being made to obtain marrow tissue with as little blood as possible.

Parasites are often scarce in this material, but careful examination of Giemsa stained smears, referred to an expert labor-

tory, will often make the diagnosis. Culture of bone marrow material on NNN medium at room temperature, according to the technic in textbooks of tropical medicine or parasitology, will often produce demonstration of the flagellate forms within a week or two.

The liver is more likely to show parasites than the bone marrow, and liver puncture through one of the lower intercostal spaces, if properly performed, is practically without danger. The same general technic as for spleen puncture should be employed. The principal precaution is to make certain that the blood coagulation and bleeding times are within normal limits. If they are increased a blood transfusion will reduce them to normal.

Spleen puncture should not be attempted unless the spleen protrudes an inch or more below the costal margin.

I believe that if this disease is kept in mind by all physicians, and if proper diagnostic procedures are carried out before all the possible examinations for every other disease are conducted, diagnoses will be made much earlier than has been the case in the past.

HENRY E. MELENEY, M.D., New York.

ADMINISTRATION OF AMINO ACID DIGEST

To the Editor:—In the note "Fatality Associated with the Administration of Amino Acid Digest" by Curreri, Hibma and Cohen (*THE JOURNAL*, July 7) it is stated that "to our knowledge, no mortality has been previously recorded with the use of amino acids."

I wish to call attention to the paper by Hopps and Campbell, "Immunologic and Toxic Properties of Casein Digest as Prepared for Parenteral Administration" (*J. Lab. & Clin. Med.* 28:1203 [July] 1943), in which is reported a death one hour after the administration of 200 cc. of 10 per cent amino acid solution (hydrolyzed casein). At necropsy it was determined that this patient had severe hepatic damage. The mechanism of this untoward reaction to amino acids was discussed and it was concluded that in patients with severe hepatic damage (e. g. acute toxic necrosis or diffuse hepatitis) parenteral therapy with amino acids might result in sudden death.

In the case reported by Curreri, Hibma and Cohen it is stated that "the liver showed slender hepatic cells, hepatitis and infiltration of portal canals with lymphocytes and occasional polymorphonuclear cells." This case would seem to confirm our previous observation and introduce an important contraindication to the parenteral administration of amino acids.

HOWARD C. HOPPS, M.D., Oklahoma City.

Professor of Pathology, University of
Oklahoma School of Medicine.

"WHOLE" OR "CITRATED" BLOOD

To the Editor:—Dr. Lewisohn maintains that the term "whole" blood, as suggested by Dr. Scannel, should include "citrated" blood. I respect the opinions of both of these men.

We have been using primarily "citrated" blood for twenty-three years in our obstetric service. I've always differentiated between "citrated" blood and "whole" blood because even though we have used adequate amounts of "citrated" blood, we have, during this period of time, had some 8 or 10 patients who continued to bleed from incisions. This bleeding was promptly stopped by the injection of 400 to 500 cc. of blood without any anticoagulant, the transfer being made by the multiple syringe method. The incidence of reaction has been slightly higher with citrated than with whole blood, but in neither instance have they been of great significance.

WILLIAM J. DIECKMANN, M.D., Chicago.

Chief of Staff, the Chicago Lying-In Hospital.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in *THE JOURNAL*, Sept. 1, page 91.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Mar. 19-21. Sec. Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

ALASKA: Juneau, September. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

ARKANSAS: * *Medical*. Little Rock, Sept. 20-21. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic*. Little Rock, Nov. 8. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral*. San Francisco, Nov. 11. *Written*. Sacramento, Oct. 15-18. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

COLORADO: * Denver, Oct. 2-5. Final date for filing application is Sept. 17. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver.

CONNECTICUT: * *Medical*. Examination. Hartford, Nov. 13-14. *Endorsement*. Hartford, Nov. 27. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic*. Derby, Nov. 13-14. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

ILLINOIS: Chicago, Oct. 9-11. Supt. of Registration, Department of Registration & Education, Mr. Philip Harman, Springfield.

KANSAS: Topeka, Dec. 6. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

MAINE: Portland, Nov. 13-14. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

MARYLAND: *Medical*. Baltimore, Dec. 11-15. Sec., Dr. J. T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic*. Baltimore, Dec. 11-12. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 20-23. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MICHIGAN: * Ann Arbor, Sept. 11-13. Sec., Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

MISSISSIPPI: Jackson, Sept. 26-27. Asst. Sec., State Board of Health, Dr. R. N. Whitefield, Jackson 113.

MONTANA: Helena, Oct. 1-3. Sec., Dr. O. G. Klein, First Nat'l. Bank Bldg., Helena.

NEW JERSEY: Trenton, Oct. 16-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, Oct. 8-9. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Oct. 1-4. Sec., Dr. Jacob L. Lochner, Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: *Endorsement*. Columbus, October. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

RHODE ISLAND: * Providence, Oct. 4-5. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, Nov. 13. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * Pierre, Jan. 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

VERMONT: Burlington, March or April 1946. Sec., Dr. F. J. Lawliss, Richford.

WEST VIRGINIA: Charleston, Oct. 4-6. Commissioner, Public Health Council, Dr. John E. Offner, State Capitol, Charleston 5.

WISCONSIN: * Madison, Jan. 8-10. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, Oct. 1-2. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: Oct. 13. Address State Board of Healing Arts, 250 Church St., New Haven 10.

DISTRICT OF COLUMBIA: Washington, Oct. 22-23. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

FLORIDA: DeLand, Nov. 3. Sec., Dr. J. F. Conn, Box 655, DeLand.

IOWA: Des Moines Oct. 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MICHIGAN: Ann Arbor and Detroit, Oct. 12-13. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

MINNESOTA: Minneapolis, Oct. 2-3. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis 14.

NEBRASKA: Omaha, Oct. 2-3. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln 9.

SOUTH DAKOTA: December. Sec., Dr. J. D. Alway, Aberdeen.

TENNESSEE: Memphis, Sept. 24-25. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

WISCONSIN: Madison, Sept. 22. Sec., Prof. R. N. Bauer, 152 W. Wisconsin Ave., Milwaukee 3.

Society Proceedings

WAR WOUNDS OF THE SPINAL CORD

A Special Session, held at the Newton D. Baker Hospital, Martinsburg, W. Va., June 20, 1945

Foreword

BRIGADIER GENERAL FRED W. RANKIN, Chief Consultant in Surgery, U. S. Army: The highly effective manner in which the Medical Department of the U. S. Army is caring for and rehabilitating casualties who have suffered war wounds of the spinal cord represents one of the major medical achievements of this war. The gratifying results which have been and continue to be attained have been made possible by early surgical intervention following wounding in all cases in which there is the slightest doubt that the cord has been damaged, by as prompt evacuation to general hospitals in the United States as is compatible with the safety of the patients, and by the concentration of these cases in nineteen of the general hospitals of the United States where facilities for their specialized treatment have been provided and well organized programs for their convalescent care and rehabilitation have been developed. The high degree of integration and coordination which has characterized the efforts of surgical and medical specialists, nursing personnel, enlisted attendants, physical therapists, dietitians, occupational therapists and Red Cross workers has produced in these nineteen general hospitals a program of therapy, convalescent care and rehabilitation which in quality and effectiveness far surpasses that ever before afforded paraplegic patients. The energetic and cooperative efforts on the part of the personnel concerned with this program have made a notable accomplishment in a condition that has long been considered a grave and tragic problem.

The following symposium has been prepared by a number of authors whose unique experiences with the problem of spinal cord injuries renders them capable of speaking with unusual authority on this difficult subject. The papers of this symposium deserve the careful consideration of the profession, for a defeatist attitude in the care of patients with traumatic transverse myelitis can no longer be tolerated. Rehabilitation, when properly conducted, can and must establish a wheel chair life for the majority and walking with the aid of braces or crutches for many.

The Paralyzed Patient: Neurologic Aspects

MAJOR CHARLES W. ELKINS, M. C., A. U. S.: Prior to World War II there was no unanimity of opinion as to the therapy for a patient who had received a spinal cord injury. As a result of the increase in numbers of this type of injury since the advent of the war, the attention of many individuals in the Army Medical Corps has been focused on this problem. The Army Medical Corps has initiated certain concepts and principles in therapy which will serve as a guide post in the future for the treatment of a type of injury which is bound to be more numerous as our age becomes increasingly mechanized. Treatment begins from the moment of injury and does not cease until everything possible has been done to insure a satisfactory outcome. A definition of satisfactory outcome from a neurosurgical point of view means that it must be determined that further surgery is not indicated in order to permit or to aid in recovery of function to the spinal cord in both sensory and motor spheres. The patient must be free from pain. The patient must be relieved of incapacitating spinal reflexes and paraplegia in flexion.

The cause of pain following injury to the spinal cord may be relatively simple or somewhat obscure. Retained foreign bodies in close proximity to pain tracts or posterior nerve roots may be the etiologic factor. Arachnoiditis following trauma to the spinal cord may result in pain either generalized or girdle in character. Bony overgrowth, from healed fractures, impinging on nerve roots may be responsible for pain

in certain cases. Involvement of the sympathetic nervous system may result in a most distressing type of pain.

Removal of retained foreign bodies and bony overgrowths is fundamental surgery when their presence has a reasonable chance of being the causative factor of pain. Alcohol injection of posterior nerve roots may be employed if the pain is segmental and the etiologic factors are obscure or the chances of relief by more direct methods slight. This procedure is not usually incapacitating unless employed in the low sacral region, where there is danger of interfering with bladder and bowel function. Alcohol injection into the subarachnoid space should be generally avoided because of the danger of upsetting the relationships of a bladder whose physiology is already precarious. Of the surgical procedures commonly employed, section of posterior nerve roots is the simplest and offers the best chance of success particularly in girdle type pain. Will the interruption of skin reflexes following section of certain posterior roots have deleterious effects on an autonomous bladder? If these more simple methods for relieving pain result in failure and involvement of the sympathetic nervous system has been discarded as the etiologic factor, a section of the spinothalamic tract may be employed. This is not a particularly hazardous procedure but has certain disadvantages. The tract is not on the surface of the cord and therefore the section cannot be done under direct vision. Certain pain fibers, therefore, may be left intact. Carefully performed, however, this procedure may result in relief of pain where other methods have failed. While patients of this type do not readily tolerate pain, neither do they tolerate extensive surgical procedures, and therefore following careful consideration of the cause of pain the simplest procedures available which would seem to offer the best chance of success should be employed in order to relieve this most distressing symptom. Out of a total of 69 spinal cord injuries, both complete and incomplete, as of the 1st of May, 24 had spinal reflexes, the severity varying from complete to mild incapacitation. Incapacitation must needs be defined when used in describing a symptom in a paraplegic patient. When one considers that the ultimate aim in the treatment of a paralyzed patient is some method of ambulation, it may readily be seen that automatic spinal reflexes and particularly the frequently coexisting complication of paraplegia in flexion may be considered incapacitating. A term which I have discarded but which is generally used to describe these phenomena is "mass reflexes." A mass reflex has been described as a maximal motor response in flexion to a minimal sensory stimulus in an animal with a transected spinal cord. My reasons for discarding this term are that not all of our patients with proved transections of the cord have maximal motor response to even strong sensory stimuli and indeed some do not have even minimal motor response. To continue this discrepancy further, we have observed patients with partially transected cords who demonstrate probably maximal motor response to minimal stimuli but the response is in extension and not in flexion. Thus I believe the term spinal reflex to be the more accurate term of the two. The mechanics of a simple and uncomplicated spinal reflex consists in sensory stimuli entering the spinal cord through the posterior nerve roots and, after transmission to a large number of anterior horn motor cells, emergence as efferent stimuli to motor groups. It would seem logical, therefore, that an interruption of this cycle would control spinal reflexes in the area involved, depending on where and over what extent the cycle was interrupted. This has been done on 3 patients at this hospital with success. Provided the patient is incapacitated and that all hope of spontaneous recovery has been abandoned, the procedure of anterior root rhizotomy which we have employed seems indicated.

A Plea for Exploration of Spinal Cord and Cauda Equina Injuries

LIEUTENANT COLONEL AUGUSTUS McCRAVEY, M. C., U. S. Army, Neurosurgical Section, Wakeman General Hospital, Camp Atterbury, Indiana: Such authorities as Frazier, Lyster, Mock, Oldberg, Wechsler, Love, Munro, Coleman and Meredith, Kennedy and, more recently, Sparling have advocated exploratory laminectomy. With the present advances in surgery, the operative procedure can be done with a minimum of risk to life. Thirty-two laminectomies have recently been

done at Wakeman General Hospital, under local anesthesia, without a death or postoperative complication. If a conservative policy is adopted, it is difficult to select those cases which may be helped by surgery. The neurologic examination can reveal only the degree of physiologic interruption but not the extent of the anatomic lesion. The Queckenstedt test has been eliminated as a criterion in selection of cases for laminectomy by Mayfield. Poppen and Hurxthal have demonstrated that the Queckenstedt test gives a normal response as long as the lumen of the subarachnoid space is not less than the bore of the needle used. Likewise, x-rays of the spine are not always reliable. Depressed bone fragments into the neural canal are often found at operation with a previous negative x-ray report. At Wakeman General Hospital 71 patients have been admitted with penetrating wounds of the spine with spinal cord and cauda equina injury. Thirty-six still require routine paraplegia care, of which 18 are complete paraplegias. This report will be confined to that group of 36 still requiring paraplegia care. Thirteen had adequate previous operative treatment with the time between injury and surgery varying from three hours to twenty-five days. Five have shown partial return of motor and sensory function, of which 2 were cervical, 1 dorsal and 2 cauda equina injuries. Two patients not previously operated on are awaiting surgery, which has been deferred until adequate nutrition can be established.

The remainder of the 21 patients have had adequate exploratory laminectomies. Six were explored for foreign bodies in or adjacent to the neural canal. Two were bone fragments and 4 were shell fragments. Three showed neurologic improvement. Three had severe pain which was relieved by surgery. Seven were operated on for pain only. All were cauda equina and conus lesions, of which 4 were improved, 3 were only temporarily relieved and chordotomy is contemplated for this group. Eight patients have not had previous exploratory laminectomies. In 7 the dorsal cord and in 1 the cervical cord was involved. Two incomplete lesions showed definite improvement and 1 complete lesion is now showing movement of toes. The cause for operative treatment in the group with pain and foreign bodies is obvious and results are often gratifying. Of the group not previously operated on 6 showed complete physiologic interruption by neurologic examination and 1 of these was definitely improved. This is considered significant, since this group is usually considered hopeless. Much care has been taken in selecting and preparing these cases for surgery. Emphasis has been placed on the care and treatment of urinary tract infection and decubitus ulcers. No surgery is done until all nutritional deficiencies have been corrected and there is a balanced protein metabolism. This group of patients is anxious to have any type of surgery which may offer the slightest hope and will often ask for exploratory surgery.

DISCUSSION

MAJOR GEORGE MALTBY, M. C., A. U. S.: The complication of mass reflexes and spinal reflexes can be serious. I feel that the operation of anterior rhizotomy may be at times a life saving procedure. I have done one such operation on a man with pronounced flexion contractures. They had become so severe that he had had suicidal ideas. The operation in this instance was extremely successful. His legs have straightened out and I feel that he is making gratifying improvement. Once the spasms are controlled it is then possible to go ahead with the ambulation and further rehabilitation of the patient. It is important to use extreme conservatism in picking the cases for this operation. The question of the treatment of pain in the spinal cases has been a problem. I have seen a fairly large group of patients with cauda equina lesions and severe pain in the lower extremities. The majority of these cases are much relieved by exploration of the cauda equina, which I believe has the same results as neurolysis in certain painful peripheral nerve lesions. I have tried sympathectomy for relief of this type of pain in 2 instances without benefit. The method of choice in relieving the pain in this group of patients is a high dorsal chordotomy.

LIEUTENANT COLONEL FRANK MAYFIELD, M. C., A. U. S.: I should like to say a word of caution with regard to rhizotomy and other destructive operations designed for the control of

massed reflexes. Cases that require this operation are rare, and it should be deferred for at least a year after injury unless there is absolute proof that the cord has been completely transected. Many of these tend to become less forceful and less easily excitable with the passage of time. It seems that the attending doctor is more anxious to do something about these massed reflexes than the patient or the nurses and attendants who care for them. Unless these reflexes are definitely interfering with nutrition or the care of the skin and bladder, I don't believe such an operation should be done.

LIEUTENANT COLONEL CONDUCT W. CUTLER, M. C., A. U. S.: During the past year 67 patients of this type have been admitted to Cushing General Hospital. Ninety-two per cent of cord injuries were caused by gunshot wounds and shell fire. Eight per cent were crushing injuries. Of 64 patients 3 had cervical spine injuries, 44 dorsal spine injuries and 17 lumbar spine injuries. Twenty-five per cent had incomplete paralysis with sufficient motor function of the legs to permit walking with braces. Two who had complete paraplegia on admission developed nearly normal recovery in three months' time. All patients on admission had paraplegia or paraparesis of a flaccid type. From three to nine months was required for a return of deep reflexes and Babinski. The sensory level was sharply demarcated. Twelve patients presented complete sympathectomy effect. Twenty showed increased sympathetic tone with cold moist feet. All but 1 had flaccid paralysis of the bladder. Three patients with priapism had contusion rather than transection of the cervical or dorsal cord. To date no case which on admission showed no flicker of motion in the foot or leg has shown any improvement up to one year's hospitalization. Only 2 cases of cauda equina lesion which showed no flicker of motion on admission showed later improvement. In 67 cases of paraplegia, 34 laminectomies have been done overseas. Fourteen laminectomies were done in this hospital because of total manometric block or in order to determine prognosis and the justification for anterior root resection of the lumbosacral roots to diminish spasm. All laminectomies at Cushing were discontinued in December 1944, as directed by the Surgeon General. In 48 cases of laminectomy, both those done overseas and here, the following findings were recorded: 10 cases, transection; 14 cases, normal cord; 11 cases, contused cord. In 48 cases of laminectomy 16 eventually improved, and sufficient function developed to permit walking. Twenty-two have shown no improvement in one to twelve months. It is to be inferred that these 22 cases of nonimprovement include the 10 cases of transection and some of the cases of contused cord. Fourteen laminectomies done at Cushing Hospital were late operations, generally several months after injury. The findings were about equally divided between normal appearing cord, transection of the cord and contused cord. Four have shown improvement.

LIEUTENANT COLONEL BARNES WOODHALL, M. C., A. U. S.: Neurologic opinions concerning these problems are fairly well established. There is no question that we have a definite responsibility to relieve pain, although it must be admitted that this symptom may vary considerably from patient to patient. The pain associated with the presence of large foreign bodies is a clearcut syndrome and is easily relieved. In cauda equina lesions neurolysis will often diminish the pain sometimes encountered in such patients. I have been impressed by the operative relief of this type of pain noted in overseas reports. I agree with Lieutenant Colonel McCravy that chordotomy is an operation that we have used too infrequently. We have very little to lose with this procedure and the results have been good in the hands of competent surgeons. I am in complete accord with Major Elkins concerning the problem of reducing mass spinal reflexes. The problem, however, is not always as simple as that demonstrated by his patient. In these severe instances where the spinal injury is complete anterior rhizotomy must be done. In the incomplete cases conservative measures of restraint should be followed together with the entire regimen of paraplegic care. Such spinal reflexes then have a tendency toward spontaneous resolution. Exploratory laminectomy in uncomplicated spinal cord lesions is of dubious value. One should not expect neurologic improvement at a late date. Among 35 cases of paraplegia in which operation

was performed within a time period of three hours to five days after injury, 57 per cent showed improvement. Among 386 cases in which operation was performed at a later date in base general hospitals, 10 per cent showed improvement. Colonel McCravey has reported but 1 case showing evidence of improvement out of 6 late after injury. In other groups of cases of paraplegia in which operation was performed three to four months after injury there was failure to show neurologic improvement which could be correlated with the operative procedure. Any objection to exploratory laminectomy naturally does not apply to cauda equina lesions, in which the presence of foreign bodies, depressed bone fragments, inadequate early operation or pain appears to be an indication for exploration.

LIEUTENANT COLONEL SPENCER BRADEN, M. C., A. U. S.: I agree with Colonel Woodhall that discretion should be exercised in the selection of cases for operation for the relief of mass reflexes. We have, at Nichols General Hospital, been trying very hard to dodge the issue of operation in this type of case. We have recently, at the suggestion of one of our internists, Capt. David F. James, been using curare in an effort to control the painful spasms in these cases. We were fortunate in obtaining the cooperation of the Surgeon General's Office in this matter. We have used the drug in varying doses of from 10 to 100 mg. in 5 cases. It is too early to formulate a definite opinion, but we do feel that it may possess very definite possibilities. This drug has been used by anesthesiologists in conjunction with general anesthetic agents for the purpose of promoting greater muscular relaxation. One patient has been relieved of his painful spasms for as long as ten to fifteen hours. Prior to its administration he had experienced great difficulty in obtaining a night's rest, and physical therapeutic procedures were exceedingly difficult because of the reflexes. We have observed no contraindicating deleterious effects even after administration of 100 mg. of the drug. Slight transitory diplopia has been complained of, with an associated feeling of slight unreality. In the evaluation of results of operative intervention in cases of paraplegia a sharp line of distinction should be drawn between the cauda equina and the spinal cord. The cauda equina has the characteristics of and is in essence a peripheral nerve and one would therefore expect it to behave in a similar manner. It can withstand trauma and be expected to recover, whereas the same situation in the spinal cord proper would be hopeless.

MAJOR CHARLES W. ELKINS: I am glad that the feeling toward conservatism has been made evident. The 3 cases of rhizotomy performed at this hospital were on proved complete lesions. One might consider the possibility that posterior instead of anterior rhizotomy be performed to control spinal reflexes. Dr. Frazier did this in 1911 on a patient with spastic paraplegia, syphilitic in origin. The patient did not live long enough to permit evaluation of results, and no autopsy was performed. To my knowledge nothing further has been reported on this procedure and I think it should probably be considered.

The Paralyzed Patient: Urologic Aspects

CAPTAIN BORIS P. PETROFF, M. C., A. U. S.: At Newton D. Baker General Hospital 70 patients with spinal cord injuries have been received since September 1944. These include complete and partial traumatic myelitis at levels from the seventh cervical down to cauda equina injuries. Forty of these had suprapubic cystostomies performed overseas. This report deals with these 40 patients with suprapubic cystostomy and the reestablishment of urethral voiding in 17 of them. Urea nitrogen and carbon dioxide combining power are obtained and intravenous urograms, which are extremely valuable as a matter of record so that a comparison may be made with later plates in case a febrile reaction develops as the result of urinary complications. The suprapubic tube is checked for its adequacy, changed if necessary and connected to the closed system, manually controlled type of drainage and irrigation, so that the patient can irrigate himself with the M citric acid buffered solution (Suby and Albright: *New England J. Med.* 225:81 [Jan. 21] 1943). As soon as the patient's condition warrants it, the suprapubic tube is removed, the sinus

packed and a urethral catheter is inserted. We use a small caliber catheter such as a No. 16 or No. 18 French, with added holes cut in its tip for better drainage in an attempt to avoid the occurrence of periurethral abscesses and epididymitis. Of the 38 patients changed from suprapubic drainage to catheter drainage in the past nine months, 6 have developed periurethral abscesses at the penoscrotal junction followed by fistula formation, and 4 have developed epididymitis, 1 of which was bilateral. Another patient who had both abscess and epididymitis came to orchiectomy. These periurethral abscesses occurred during use of the 22 F. Foley self-retaining catheter in an attempt to avoid using adhesive tape on the penis, especially because priapism tends to pull the straight catheter out. These abscesses might have been avoided if smaller catheters had been employed or if a No. 18 self-retaining 5 cc. bag catheter had been available instead of the larger sizes. Catheters of large size may cause necrosis of the urethral mucosa at the penoscrotal angle and lead to abscess formation. A urethral fistula which heals slowly, rived in slowness only by the perineal urethrostomy, represents a decided handicap to the spontaneous activity of which some of these six bladders are now capable. An attempt is being made now to speed the closing of these fistulas by suture with stainless steel wire, and it is difficult to state at this time what the eventual status of patients with this complication will be.

As for epididymitis, we recently had a case which developed even though no catheter over No. 16 was ever used. The question has come up regarding ligation of the vas deferens in conjunction with a urethral catheter to prevent epididymitis, but the youthful age group and the possible effect on the patients' morale have been against it. They all hope for an active sex life.

The change from suprapubic tube to urethral catheter is always a big lift to a patient's morale, as the cystostomy is repugnant to most of them. The sinus heals in from two to six weeks. A cystourethrogram is done as a matter of record. Cystometric readings are taken as soon as the cystostomy heals and sometimes through the cystostomy tube if there is not undue leakage around it. Cystometric curves have been very valuable in differentiating between the hypotonic bladder and the hypertonic small bladder aggravated by mass reflexes. These mass reflexes are a great problem, as urine escapes around the catheter and keeps the patient wet whenever the bladder contracts spasmodically. The cystometric curve also indicates when the patient has established a reflex bladder and the catheter can be dispensed with. The main procedure in rehabilitating the bladder in establishing a reflex bladder of good capacity is institution of tidal drainage apparatus. The Stewart-Munro modification is the one used here and has given very good results.

Of the 38 patients who have been placed on urethral drainage in this hospital, 30 have had tidal drainage apparatus irrigating and exercising their bladder for one to three months. Seventeen are voiding now with little, if any, urinary residual and all have shown increased bladder capacity, which has advanced most of them from 50 to 75 cc. to 300 to 400 cc. bladder volume as contrasted to 1 who did not get tidal drainage and remained with a small capacity bladder and a suprapubic cystostomy. Of the remaining 8 patients on urethral drainage without tidal irrigation, 4 had cauda equina injuries and 4 are those whose cystostomies have not yet healed. In time, with tidal drainage, we expect those patients with complete cord lesions to void by reflex action. So far, those with high thoracic or cervical transverse complete myelitis seem to be the slowest to respond to automatic irrigation. Those with partial myelitis have resumed bladder activity in three to four months. While on tidal irrigation, the constant inflow and outflow of M solution keeps the bladders clean and the walls elastic. M solution has been the best for irrigating purposes. It is composed of citric acid buffered with magnesium oxide and sodium carbonate and has a pH of 4.5. Although it will not completely prevent calculus formation in the bladder or destroy bacteria, it has given better results than 0.5 per cent acetic acid or boric acid, which we used at first.

The most pressing problem in keeping these paralyzed patients alive and reasonably well is to combat urinary infections attended by chills, fever and calculus formations. All our urinary flora now contain *Aerobacter aerogenes*, *Proteus vulgaris* and *Bacillus pyocyaneus* and occasionally *Escherichia coli*. The staphylococcus and streptococcus have been cleared up by penicillin therapy. After each chill and elevated temperature, a blood culture is taken. We have had three positive blood cultures, two for *Aerobacter aerogenes* and one for *Proteus vulgaris*, later followed by *Bacillus pyocyaneus*. All three became negative in three to four days following increased doses of penicillin, blood transfusions, relief of ureteral obstruction and forcing fluids, as well as supportive measures such as the oxygen tent, and digitalis therapy administered by the medical service. The gram-negative organisms which infect the urinary tract cannot be eliminated by penicillin as can the staphylococcus and streptococcus groups. They also have urea-splitting properties, causing the formation of alkaline calculi in the bladder and kidneys. Of 40 catheter or cystostomy patients who have had intravenous pyelograms and observation cystoscopies of the bladder, 28 had bladder stones of varying size and hardness, composed of calcium and magnesium carbonate and phosphates. All these urines contained *Aerobacter aerogenes* and *Proteus vulgaris*. These calculi are ever present. Patients with suprapubic drainage had them and after they had been removed and urethral drainage had been instituted within a few months they had recurred in the bladder. These bladder stones are easily removed by the Elikk evacuator through the panendoscope sheath, but the larger ones have to be crushed first with a visual lithotrite. Demineralization of the bones in recumbent patients as demonstrable by osteoporosis in x-rays, resulting in increased calcium salts in the urine and stasis in the bladder due to incomplete emptying by catheter, especially the Foley bag catheter, which may allow puddling of urine behind the retaining balloon, may account for these bladder calculi, but the gram-negative urea splitting bacilli are the probable factors at the bottom of this stone formation.

The treatment of upper urinary tract infection has been difficult. Of 43 paralyzed, bedfast patients, 8 have developed renal calculi. The paralyzed patient with a high spinal cord lesion cannot localize renal pain, and the diagnosis of renal calculi depends on intravenous urograms, which are taken as soon as the patient develops abdominal distress, vomiting, distention, chills or fever. Of these 8 patients with kidney stones, 2 have had to have operations for urethral obstruction. One had to have a nephrectomy because of cortical abscesses and stone, and the second had a pyelolithotomy and since has had another stone obstructing the ureter. Three others responded to more conservative measures of passing a catheter up to the obstructed kidney as, fortunately, the calculi were small. One death was due to a pyonephrosis and lung abscess as well as to ureteral calculi, the culture of the renal abscesses showing *Aerobacter aerogenes*. Penicillin, sulfonamides and blood transfusions combined with general medical and surgical care have served to keep these patients alive so far by combating streptococcal and staphylococcal infection.

Aseptic care of the catheter tidal drainage apparatus and collecting bottle and tubing are taught to each corpsman in the ward. Two specialists are on duty all the time for urologic care only. The patient himself is instructed as to how to avoid contaminating his catheter in an attempt to reduce the incidence of infection. The paralyzed patient will be most benefited by general building up of his resistance to infection, and the urologist will do the most good by conservative treatment and careful watching and waiting, using every diagnostic and therapeutic method at his disposal to forestall ureteral obstruction and blood stream infections, hoping to avoid complications until a time when the patient can dispense with catheters and be on his own with a reflex bladder or voluntary voiding.

In summary, of 70 patients with spinal cord injuries, 40 who had suprapubic cystostomies have been, or are being, placed on urethral drainage, which has enabled 17 of them, so far, to empty their bladders by voiding with little if any residual. Urethral catheters caused complications, such as

periurethral abscesses in 6 cases and epididymitis in 4 cases of the total of 38 with urethral indwelling catheters. Urinary infections have been predominantly due to gram-negative organisms, and formation of bladder calculi was high. Renal calculi were found in 8 of the total 70, mostly among the 43 seriously injured patients whose physical activity has been limited.

Patients with spinal cord injury who have had suprapubic cystostomy for transportation purposes overseas should be given a chance to reestablish some form of voiding through the urethra. This is done by inserting a urethral catheter of small caliber and instituting tidal drainage. The complications of the urethral catheter, such as periurethral abscesses with fistula formation and epididymitis, can be partly reduced by avoiding the use of any catheter over No. 18 French in size. The patient's condition must be good before the change from suprapubic to urethral drainage is made. The end result of a good percentage of voiding patients would seem to justify this course of action. Urinary infections can be controlled by sulfonamides, penicillin and the new antibiotics which help to destroy gram-negative organisms. Urologic complications of the upper urinary tract must be expected and constant watch kept for renal calculi and abscess formation. These are treated in the most conservative fashion. The urologic management of the paralyzed patient is a constant struggle against many odds, but the end result of a voiding, upright, infection free individual is worth the fight.

Associated Complications in War Wounds of the Spine

CAPTAIN WILLIAM C. WARD and MAJOR G. L. MALTBY, M. C., A. U. S.: At present there are 32 cases being cared for jointly by the neurosurgical and genitourinary sections at the Ashford General Hospital, White Sulphur Springs, W. Va. The entire group had, in addition to the usual decubitus ulcers and urinary tract pathologic conditions, associated injuries to the peripheral nerves and peripheral blood vessels, compound fractures, traumatic amputations, penetrating wounds of the chest and penetrating wounds of the abdomen requiring colostomy. Spastic disorders in the complete and near complete cord lesions have likewise been quite a problem.

The following cases represent the less common problems that have appeared in this group:

CASE 1.—*Fecal fistula through the spine.* On July 6, 1944 a private sustained a shell fragment wound of the spine in the region of the fifth lumbar vertebra. On July 7 a laparotomy was done. The amount of injury to the intestine is not described; however, he had generalized peritonitis at the time. A cystostomy was done for rupture of the bladder. The wound in the region of the lumbar spine was debrided. Later he was found to have drainage of fecal material through the wound in the lumbar region. He also had drainage of feces and urine from the suprapubic tube. On July 29 an exploratory laparotomy was done, and a loop of small intestine was found to communicate with the bladder. The source of drainage of feces through the wound in the back was not found. Postoperatively the patient did very well. However, the upper end of the abdominal incision opened and drained fecal material but no urine. Physical examination revealed a midline abdominal incision with drainage of fecal material and pus from the lower portion. There was an extensively scarred wound measuring 3 by 4 cm. in the midline of the back at the level of the second lumbar vertebra. Immediately beneath this scarred area was an area of fluctuation, and pressure on this caused purulent material to be expressed from the wound. There was pronounced atrophy of all the muscles of both lower extremities. However, the patient was able to move the toes of both feet a little. There was an area of anesthesia over both buttocks and the posterior aspect of both thighs. On numerous occasions he had noted the passage of gas through the draining wound in the lumbar region. On December 4 a barium enema was given and the film showed a fistulous tract extending from the distal portion of the sigmoid superiorly into the region of the fourth lumbar vertebra. On Feb. 5, 1944 the draining sinus was injected with iodized oil. This revealed that the sinus extended into the

fifth lumbar interspace and proceeded through the sacrum to enter the intestinal tract. Films made one hour later revealed oil in the sigmoid. On March 15 two small pieces of bone extruded from the wound in the back. He continued to have a considerable amount of purulent drainage from this wound in addition to gas. On April 7 a transverse colostomy was done. There has been less drainage from the wound in the back since that time; however, the patient does continue to pass a small amount of gas occasionally through this wound. Further exploration is now considered.

CASE 2.—Urinary fistula through spine. On June 1, 1944 a private sustained a shell fragment wound of the spine in the region of the fifth lumbar vertebra with immediate paralysis of both legs and a rigid abdomen. Exploration revealed a large retroperitoneal hemorrhage. A pyelogram revealed an injury to the left ureter. On July 25 an exploration was made of the left ureter and a foreign body was removed. A catheter was inserted into the ureter. Examination revealed several draining wounds over the back in the region of the fifth lumbar spine. There was a complete paralysis of the entire right lower extremity; however, the patient showed some function of the left quadriceps muscle. There has been urinary drainage from the wound in the back. An intravenous pyelogram did not reveal any definite injury to the left ureter. Following this the patient's general condition gradually improved. Most of the wounds on the back healed. One small area continued to drain purulent material and intermittently drained urine. On Feb. 10, 1945 the sinus was injected with iodized oil. The sinus tract passed down through the left sacroiliac joint and proceeded to enter the left ureter near its distal end; the oil then ascended the ureter to the level of the fourth lumbar vertebra. Films made twenty-four hours later showed a small amount of oil in the left kidney and in the bladder. The intravenous pyelogram was repeated on February 14 and revealed a small stone in the ureter apparently at the site of the fistula. Urine continued to drain from the sinus and could be demonstrated by methylene blue given by mouth. On March 14 the left kidney was removed. There was no further drainage of urine from the wound in the back. However, there persisted some drainage of pus. On May 2 the sinus tract was explored and several small fragments of bone were removed.

CASE 3.—Chronic recurrent meningitis. On Nov. 19, 1944 a private sustained a shell fragment wound of the spine in the region of the third lumbar vertebra. He had immediate complete paralysis of the lower extremities. A laminectomy was done and a small shell fragment was found lying alongside the cord, with laceration of the third lumbar root. Postoperatively the patient was able to move the feet and legs a small amount. He developed a spinal fluid fistula at the site of the original wound. On December 16 the spinal fluid drainage stopped and the patient became quite ill with high temperature (104 F.), stiff neck and rapid pulse. He stated that he had been having a low grade fever and had had frequent severe left frontal headaches since the middle of December. Examination revealed a small, well healed wound just to the left of the spine in the region of the third lumbar vertebra. There was a well healed laminectomy wound which extended from the first lumbar to the third lumbar. There were weak contractions of both quadriceps muscles. No other motor function was noted. There was hypesthesia over both lower extremities below the level of the second lumbar dermatome. There was an extreme degree of emaciation. On Jan. 29, 1945 an intravenous pyelogram revealed slight hydronephrosis of the right kidney; the left kidney was completely blocked. It was thought that the persistent fever and extreme emaciation were due to this. On January 31 the left kidney was removed and found to contain thick pus and abscesses. Postoperatively the patient felt much better and appeared improved. Ten days later he developed sudden onset of severe left frontal headache. This was associated with a rise in temperature to 103 F. A spinal puncture was done which revealed a white cell count of 4,408, with 99 per cent polymorphonuclears. Culture of the spinal fluid was negative. During the next two days the temperature subsided. Two days later a spinal puncture revealed a white cell count of

800, and culture revealed *Bacillus pyocyaneus*. The patient's condition gradually improved. On March 15 the patient developed a temperature of 104 F., became irrational, with a pulse of 160, and appeared critically ill. Spinal puncture revealed 2,000 white cells. The next morning the patient's temperature was 99 F., he was rational, and he appeared greatly improved. On March 26 he had a similar episode, with a temperature of 102 F. On April 15 he again had a similar episode of headache, slight fever and stiffness of the neck. X-ray of the lumbar spine revealed no sequestrum. Under local anesthesia on April 26 a small area of the laminectomy wound was opened. The epidural fat was edematous, but no pockets of pus were found. A drain was placed in the extradural space. Since that time the patient has shown slight improvement but has had one mild attack of headache associated with fever.

These cases represent uncommon complications as found in 88 cases of spinal cord and cauda equina injuries. Injection of draining sinuses with iodized oil has helped in determining the extent of the cavities, their locations and frequently the indicated treatment.

DISCUSSION

CAPTAIN HAROLD LIPSHUTZ, M. C., A. U. S.: In treatment of paraplegic patients at Wakeman General Hospital we have found that cystoscopy is a necessary procedure. This has been impressed on us because of the great number of cases arriving at our hospital from overseas with bladder calculi. Recently, 5 out of 7 cases presented multiple bladder calculi at the time of admission to the hospital. Cystoscopy should be done as soon after arrival of the patient as is possible, preferably within forty-eight hours. There is a point that should be stressed concerning the time of removal of all catheters. Cystometric readings, although valuable, cannot be depended on, because the most important factor is the presence or absence of spasm of vesical sphincters. When the sphincters are fully relaxed, the Cunningham incontinence clamp suffices for urinary control. In the presence of good detrusor function, accompanied with refractory spasm of the vesical sphincters, it is possible that electrical destruction of the sphincteric control will be the answer. I should like to ask one question of the neurosurgeons: We have always been taught that automatic bladder function or voluntary bladder control cannot be attained in the presence of destruction of the third sacral nerve supply to the urinary bladder (nervi erigentes), yet our best results with return of voluntary bladder control have been in cases of recovering partial paraplegia in which these nerves have been damaged.

LIEUTENANT COLONEL CONDUCT W. CUTLER, M. C., A. U. S.: Indwelling urethral catheters in these cases are undesirable because of complicating infections and epididymitis. Bladder function has not returned more rapidly when urethral catheters have been employed than with suprapubic drainage. Drainage through the perineal urethrotomy wound has proved satisfactory in that it provides good drainage and is not associated with complications. Such wounds have closed rapidly after removal of the catheter. The number of cases in this group has been too small to justify the drawing of conclusions. Tidal drainage has succeeded, where appropriate, in keeping the bladder clean and free of infection. It has been the general observation that the development of automatic bladders is rather slower in these paraplegic cases than in civil practice. It has been proposed that better and more rapid results might attend the use of a perineal urethrotomy with indwelling catheter, permitting the secondary surgical closure of suprapubic cystostomy wounds once infection has been controlled. It is believed that the automatic bladder would develop more rapidly under these conditions.

CAPTAIN GEORGE O. BAUMRUCKER, M. C., A. U. S.: I should like to discuss some of our results in these cases from my services at the Gardiner General Hospital and the Hines Veteran Hospital in Chicago. An unusual complication was presented in 1 of these cases resulting in death. The bullet that transected the spinal cord cut the right ureteropelvic junction and lodged in the diaphragm. Skiodan injected into the bladder refluxed back up into both kidneys, explaining the pyelonephritis. Dye injected into the right flank fistula showed extravasation into the right flank and made a pyelogram of

the right kidney. Both trochanters were protruding through large hip ulcers. Excision of these made nursing care easier, but the patient's course was rapidly downward and he died in spite of penicillin, plasma, blood transfusions and sulfonamide drugs. This new information that we have now regarding the large amounts of serum protein loss from these bed sores may be the factor in prolonging the lives in similar cases and preventing this severe emaciation, which too often occurs in these cases with large bed sores. We do not use tidal drainage. We use a closed system of bladder lavage set up with a special two way clamp. It is fool proof, is simple and needs no specialized care. It can be easily taken care of both by patients and by nurses. Pressure of the fingers allows the bladder to be filled, and release of the pressure allows fluid to run out of the bladder. By this technic we are able to correct the spastic and small capacity bladder, so that, when automaticity does set in, the bladder will have a bigger capacity and be more elastic. We use a cystometer which registers full bladder pressure and volume simultaneously. It has been our experience that those bladders with 100 to 150 cc. volume that can exert a pressure of over 40 mm. of mercury pressure either reflexly or by intra-abdominal pressure will successfully empty to a low residual and need no further catheter drainage. Urethral catheters get along about as well as suprapubic catheters and sometimes better if the suprapubic catheters leak, provided the urethral catheters are changed frequently and kept clean and irrigated. Otherwise, of course, if neglected periurethral abscesses are common. For the most part the cystostomy tubes inserted overseas are properly placed and located and fit well. However, those very few that were found unsatisfactory were so because of three reasons: 1. Too low an insertion in the abdominal wall, causing pressure of tube against symphysis pubis with, of course, the potential danger of bone involvement. 2. Too low an insertion in the bladder itself, causing pressure of the end of the catheter against the trigone, which often produces spasm and discomfort. 3. Lack of support of the bladder to the rectus muscle, causing a false pocket of urine between the bladder and the abdominal wall, making replacement of the suprapubic catheter very difficult.

CAPTAIN JAMES SEMANS, M. C., A. U. S.: At McGuire General Hospital we have over 30 paraplegic patients with catheters in place. Twenty of these have suprapubic drainage. Suprapubic cystoscopy has proved to be a valuable procedure. By passing the cystoscope through the suprapubic tract, it is possible not only to examine the interior of the bladder but also to remove encrusted mucosa and stones. My impression is that the patient has less cystoscopic reaction than by the transurethral route. The drainage of the bladder with the suprapubic catheter has been improved a great deal by rolling the patient on to his abdomen while irrigating the catheter. The gravitation of the exudate toward the suprapubic catheter facilitates its removal. In the supine position only the supernatant exudate is removed. I can see a problem, namely whether or not it is preferable to allow the sinus tract to close early and to treat the bladder transurethraly or to treat the bladder suprapubically until it is permanently free of exudate and stones, and then to allow the sinus tract to close, reasonably expecting to have no more difficulty afterward.

Urinary Calculi in Recumbent Patients

MAJOR JAMES J. JOELSON, M. C., A. U. S.: In a period of seven months we have encountered 31 cases of urinary calculi in recumbent patients at the Crile General Hospital. In 26 the primary cause of recumbency was a compound fracture, usually with osteomyelitis, of one or more long bones of the lower extremity or of the bones of the pelvis. Four patients had severe injuries to the abdominal viscera. Eighty-nine per cent were casualties from the European theater of operations, indicating that a tropical climate is not necessarily a factor in the formation of renal stones of recumbency. The shortest period of recumbency was one month and the longest was nine months, the average being four months. The shortest period between the initial injury and the onset of urinary symptoms was three months and the longest was nine months, with an average of four and one-half months. Twelve of the 31

patients had a single calculus, and 19 had multiple stones. In 23 of the patients the stones were unilateral and in 8 they were bilateral. They varied in size from 2 or 3 mm. to 2 cm. in diameter. All of the 31 patients had hematuria, either gross or microscopic, but only 13 showed any pus in the urine, and of these only 5 had a serious infection. The pH of the urine before treatment was started varied between 5.5 and 7.5, with an average of 6.5. The stones were demonstrable by x-ray in 24 cases (about 77 per cent). In the other 7 cases the diagnosis was proved by the passage of one or more stones. The analysis of the recovered stones showed them all to be calcium stones; 70 per cent were calcium phosphate and 30 per cent were calcium oxalate. Seventy-five per cent of the phosphatic stones showed also the presence of some oxalate, and 50 per cent of the oxalate stones showed traces of phosphate. Only one stone in this series showed a positive test for sulfonamides. The serum calcium, blood phosphorus and phosphatase (alkaline) were normal in all of the cases. The Sulkowitch test for the amount of calcium in the urine was done in 12 cases and found to be definitely elevated in 4 (33 per cent), indicating that a hypercalciuria may persist in some of these patients for more than two months. The great majority of our patients were treated conservatively. They were placed on a high fluid intake of at least 4,000 cc. a day. The acidity of the urine was increased by means of a high acid ash diet, and, if the daily pH determinations indicated it, the diet was augmented with ammonium chloride. Also these patients were got out of bed as soon as this could be safely accomplished, and if this was not possible an effort was made to change their position in bed frequently. Cystoscopy was avoided if possible in the uninfected cases, although cystoscopic manipulations were utilized when infection had already occurred or when there were definite indications for this form of treatment. By this general scheme of therapy satisfactory results were obtained in a high percentage. In 1 case a most dramatic result of dissolution of the bilateral stones was obtained; in 16 cases the stone or stones were all passed; 4 patients have either passed some of their stones or have shown a decrease in the size of the stones; 2 have shown no improvement and will probably require operation; 5 will undoubtedly require surgical intervention, and 3 have already been operated on. Solution G (Suby and Albright) has been used for 4 patients, through either a nephrostomy tube or a two-way ureteral catheter, without any appreciable results. In this series of cases there were two deaths from renal insufficiency and severe pyelonephritis.

The enforced recumbency acts in two ways: first by causing a hypercalciuria and second by allowing the sediment that forms in the calices to remain there and increase in size. Another factor which seems to favor the formation and growth of these calculi is the infection which is present with the complicating osteomyelitis. The possibility of sulfonamide crystals as the primary nidus for the formation of these stones must be seriously considered. They were found in only one stone; the other stone in the same renal pelvis did not contain any sulfonamide. The acidity of the urine is another extremely important factor in the formation of these stones. Calcium phosphate, which is present in most of the stones of recumbency, will precipitate in an alkaline urine but will usually remain in solution in an acid urine.

During the first phase of the condition, the treatment may be outlined as follows: 1. Fluid intake. 2. Diet: (a) a high acid ash or neutral ash, (b) elimination of milk, (c) elimination of fruit juices, (d) vitamins. 3. Medication: (a) urinary acidifiers, (b) urinary antiseptics. 4. Movement of the patient. 5. Laboratory studies necessary for the proper diagnosis and treatment. Milk should be eliminated, for this food definitely increases the amount of calcium excreted in the urine, and it has been demonstrated that a high calcium diet will double the urinary output of calcium. Another dietary error consists in giving these patients large amounts of fruit juice, since it is believed by some that the contained vitamins are beneficial to proper bone repair. If this is true, the necessary vitamins could easily be given in pill or capsule form and thus the alkalization of the urine by the fruit juices could be avoided. The ingestion of large amounts of both fruit juice and milk results in a highly alkaline urine containing large amounts of calcium, the most perfect combination

possible for the formation of renal lithiasis and for the continued and rapid growth of the stones. The diet should have a high vitamin A content.

It is advisable that frequent microscopic examinations of the urine be done so that the infection can be recognized early and proper steps taken. The sulfonamides are probably the most useful drugs in the treatment of these infections. Sulfacetamide shows the greatest solubility in either an acid or an alkaline urine and therefore does not form sulfonamide crystals in the renal pelvis or calices around which further stones may form. Movement of the patient, either active or passive, is essential. Patients who are completely immobilized should be turned at least once a day, if possible, in an effort to allow the dependent minor calices to empty themselves of any sedimentary particles which may have collected there. As soon as it can be safely accomplished, these patients should be got out of bed and encouraged to take as much active motion as their disability will allow. The Sulkowitch test is a relatively simple procedure which gives a fairly accurate indication of the amount of calcium contained in the urine and may be an aid in determining whether the acid regimen is causing an increase in the hypercalcinuria. In 258 consecutive cases of fractures of the lower extremity, routine films of the urinary tract were done. In not one of these was there a calculus demonstrated which had not been suspected because of clinical symptoms or microscopic hematuria. It seems, therefore, that repeated microscopic examinations of the urine will be more helpful than an occasional routine x-ray film in detecting these calculi of recumbency.

The treatment of the second phase of renal calculi of recumbency presents the urologist with many difficult and serious problems. These patients should immediately be placed on the therapeutic regimen outlined for the first phase and thoroughly studied. Unless there are definite contraindications, they are kept on this treatment for months. During this time the acid urine may completely or partially dissolve some of the stones and many of the stones will be passed spontaneously. Seventeen of our 31 patients have already passed or dissolved all their stones. Cystoscopy should be avoided if possible in all uninfected cases because the danger of introducing infection into the fertile soil of these urinary tracts is a definite possibility and the superimposed infection makes the condition infinitely more serious. Surgery should be delayed if possible until conservative treatment has been given an adequate trial and until the patient's general condition is such that surgery can be safely undertaken. Also it is desirable to have had the patient out of bed for some time before operating and thus overcome the hypercalcinuria, with its tendency toward reformation of stones. X-ray evidence that the stones have stopped increasing in size or number is reassuring information to have before operation, since it indicates that the chance of recurrence is much less. Occasionally, however, the surgeon's hand will be forced by various conditions or complications which will necessitate surgery before these optimum conditions are obtained. The type of operation to be done will be determined by the conditions present and by the experience and judgment of the surgeon.

Nonsurgical Treatment of Urinary Stone

MAJOR FRANK C. HAMM, M. C., A. U. S.: The various methods of nonsurgical treatment of urinary stone are of value principally in the prevention of stone formation. Once a calculus has formed and has obtained sufficient size to be of clinical importance, its removal is accomplished best by surgery. The disposal of urinary stones, either by dietary measures or by any of the dissolving solutions, should be reserved for only those cases in which surgery is contraindicated. Our experience to date, while limited, has not been encouraging with stone dissolving agent solution G, owing principally to the irritation of the solution and to the discomfort of the treatment imposed by the long period required, especially with the indwelling ureteral catheter method.

For prevention of stone, the following procedures may be safely recommended:

1. Increased fluid output, a minimum of 2,500 cc. each twenty-four hours. This would probably require an average intake of about 4 liters.

2. A high calory, high vitamin diet. The p_H of the urine should be checked so that the diet can be regulated to prevent the urine from becoming neutral or alkaline. The routine use of an acid ash diet is not recommended at the present time.

3. Eradication of foci of urinary infection.

4. Stasis. Surgical treatment is required for anatomic obstructions. Stasis of immobilization and recumbency must be corrected by getting these patients moving earlier. An erect position, either sitting or standing, should be stressed. Patients immobilized by casts and apparatus should be turned on a Stryker frame. Turning a patient every two hours is not enough.

5. Urinalysis once a week to detect urinary infections.

6. Hyperparathyroidism. In recurrent stone cases urinary calcium determinations should be made following a three day calcium free diet.

7. Dissolution. In instances in which stones have already formed, attempts at dissolution should be made only when surgery is contraindicated. It should be given discontinuously, and preferably through a nephrostomy tube. The use of enzymes (urease) is not recommended.

The application of these principles has greatly reduced the recurrences of stone and in an occasional instance has been credited with the dissolution or disappearance of the stone.

DISCUSSION

MAJOR ROTH, M. C., A. U. S.: I should like to show x-ray films taken of unusual types of stones in recumbency. I have never seen this type of case in civilian practice. The first patient was a man aged 23 with a fracture of the femur. He had been in bed for six months. He had no urinary symptoms, but, in routine check of the urine, red blood cells and white blood cells were found. A flat x-ray plate and intravenous pyelogram showed a column of sedimentary stones impacted in the lower third of the right ureter, causing obstruction and diminution of function of the right kidney. Fortunately, the patient passed these crystals of sedimentary calculi spontaneously. Following this the kidney function returned promptly. The second patient was a young man who had fractures of the femur and of the shoulder and who had been recumbent for six months. He was asymptomatic until he was allowed out of bed, whereupon he developed severe left renal colic. In spite of sedation, the colic continued. The flat film of the kidney, ureter and bladder showed an impact of sedimentary stones in the lower third of the left ureter, the column extending from the bladder upward for about 4½ inches. Because of the continued colic, which no sedation would alleviate, cystoscopy was done, but the catheter could not be passed above the column. We continued to treat him conservatively without results. He continued to have colic and a rise in temperature up to 103 F. accompanied by chills. A second cystoscopy was done and a number 5 ureteral catheter was passed up to the left kidney pelvis with great difficulty and left in situ. The urinary drip was definitely hydronephrotic. He continued to have severe colic without any drop in temperature and it was felt that the column of stones would have to be removed. We felt that, if we could remove the bottom of the column, the rest of the sediment would pass spontaneously. This was done cystoscopically and was successful. We obtained 320 mm. of gravel. In addition, the patient had bilateral renal calculi and was therefore placed on a high acid ash diet with great quantities of liquid. Subsequent x-ray examination showed the kidneys free from calculi.

MAJOR ABEL J. LEADER, M. G., A. U. S.: Prophylaxis is probably the most important consideration in these cases. A program of prophylactic management in recumbent patients should be both clearly defined and generally adopted. In a survey of 576 unselected orthopedic patients at Fletcher General Hospital our preliminary figures indicate that of these 212 had abnormal urinary findings. One hundred and fifty cases showed only the presence of a microscopic pyuria, while 62 others showed the presence of various combinations of pus, blood, casts and albumin. Two months immediately following immobilization is the "critical" period. It has been shown that a hypercalcinuria exists for the first sixty days or so after immobilization starts. Because of the time lag between the

first immobilization and the time we see these patients in the general hospitals in the zone of interior we do not have control of the patient during the so-called critical period. It usually takes about two to three months between the time the patient is injured and his hospitalization in the United States. Therefore the prophylactic program during this early period becomes a responsibility of the lower echelons of medical evacuation such as the field and the evacuation hospitals. Here hypercalcinuria, stasis and alkalization of the urine can be effectively combated by a regimen which involves the ingestion of large quantities of water, usually not less than 4 liters a day. Stasis can be effectively combated by turning the patients from the dorsal to the ventral recumbent position for one hour periods at least every two hours. A neutral ash and not a high acid ash diet is advised during the first two months of immobilization, because the use of the latter results in an increase in the hypercalcinuria. By ordinary standards we may think that when a recumbent patient gets 2,500 cc. of fluid per day he is getting enough, but actually because of the hypercalcinuria a relative dehydration exists which requires an intake of at least 1,500 cc. more in order to aid effectively in the elimination of the calcium which otherwise might be precipitated. Fruit juices have an alkaline residue which adversely affects the pH of the urine, and their use should be prohibited. The use of milk should also be discouraged because it too merely increases the amount of calcium which must be excreted by the kidney, which is already pouring out increased amounts. As regards the management of recumbent patients in the general hospital in the zone of the interior, the same principles must be followed through. Now, however, because there is no longer a hypercalcinuria a high acid ash diet is advisable, since-keeping the urine acid and dilute is our objective. Fluid intake must be carefully watched and at least 4,000 cc. taken daily. Frequent change of position and ambulation at the earliest possible time are necessary. The patient in a hip spica must be turned at very frequent intervals and, if in traction, as much free movement of the unimmobilized parts of the body as is possible must be encouraged. A routine kidney, ureter and bladder film is indicated in all cases with a history of recumbency of two months or longer on first coming out of plaster, especially in those in which any abnormal findings have been noted. In those cases in which stone has actually formed to any demonstrable degree, frequent x-ray check-ups at six month periods for at least two years are advisable in order that the serious late effects on the kidney may be avoided.

DR. W. H. TOULSON, Baltimore: The stones that seem to be most troublesome are located in the lower end of the ureter. They will not pass spontaneously; they become larger and cause damage and infection to the ureter and kidney of the affected side. In some instances dense strictures occur in front of these stones that make ureteral dilation by means of a bougie or catheter impossible. It is well known that a normal ureter implanted in another position in the bladder usually offers no problem, but in this infected and dilated type of ureter, where the blood supply is poor, attention must be paid to the details of implanting the ureter. The operation that I present is useful in situations of this character. I have had occasion to use the operation successfully only six times.

MAJOR S. L. RAINES, M. C., A. U. S.: At England General Hospital we care for many patients who are recumbent, since we are an amputation and neurosurgical center. I should like to bring up one matter that has not been mentioned. We are all agreed that just recumbency, with or without amputation or infection, causes calcium to leave the bones and become excreted by and deposited in the kidneys. The underlying cause of this change is not fully understood and will require careful and thorough investigation by workers trained in such procedures. I would suggest that in addition to all the work being done on caring for these patients, after stones are formed, we consider the problem of preventing such movement of the body calcium. It is a biochemical process and I believe a biochemist and such other technical help as is needed could be assigned to study this problem in one of our hospitals where so many men are confined to bed for long periods. Few, if any, civilian groups would have the cases available for such periods of time as our army hospitals have just now.

COLONEL CLAUDE BECK, M. C., A. U. S.: At Fletcher General Hospital I found that Major Leader had been assigned to the fracture ward of the orthopedic service. In a period of six weeks he picked up 13 patients with urinary calculi. This experience suggests the advisability of having a urologist in the orthopedic section so that these complications will be detected. I am interested in the possibility of a nidus for a stone being developed in a patient without showing any evidence of the stone while he is in the hospital. The possibility exists that these patients might develop stones in the urinary tract after they are separated from the Army. This is a problem which may present itself in the future.

MAJOR PETER W. SWEETSER, M. C., A. U. S.: If all this physiology and pathology is true, then the physiology of exercise is true. The use of class IV physical reconditioning will combat stasis and sluggishness. It cannot be proved that kidney stones will be immediately prevented or cured, but exercise in bed is an important adjunct to other treatment. At Newton D. Baker General Hospital we have been giving class IV physical reconditioning routinely to patients in bed. These patients feel better than those who do not have any exercise. They are very receptive and seem to look forward to it. I recommend strongly that the individual medical officer give more attention to the use of physical reconditioning for his patients. The system has been laboriously organized; why not accept its benefits?

DR. JOHN E. HOWARD, Baltimore: Recent observations on the metabolism of calcium in patients at bed rest and in casts and those suffering fractures may be pertinent to this discussion and perhaps change our orientation in our therapeutic efforts. Previously healthy patients with fractured femurs, at bed rest in casts, excrete steadily increasing amounts of calcium in the urine up to a period of approximately thirty days, at which time such calcium excretion reaches a plateau level where it is maintained for a long time, presumably until mobilization of the patient takes place. Smaller increases of urinary calcium occur when healthy patients are simply put to bed in casts without fracture. Studies have been made of the effect of various dietary changes during the plateau period of greatest calcium excretion on such fractured patients and were to me very surprising. A diet which contained minimal quantities of calcium, for example 0.2 Gm. daily, was carried on for a period of a week or two and then changed to one containing 2 Gm. of calcium or higher in the form of milk. Then the original diet was resorted to again for a period of observation. There was little or no change in the amount of urinary calcium excretion following these dietary changes. Even if calcium in the form of lactate was given in large amounts, but little increase in the amount excreted in the urine was found. Doses of vitamin D far in excess of the usual therapeutic levels also seemed to make but little difference in the amount of calcium which appeared in the urine. I was unable to detect any change in the urinary calcium excretion from the administration of sulfonamide compounds. Thus one wonders whether the strict elimination of milk and vitamin D from the diet and the restriction of sunlight to these patients is really serving the desired purpose. Under the circumstances of bed rest and immobilization for fracture, the bones rarely and the movement of lime salts out of such bones is transferred from the blood to the kidneys and is excreted via the urine. The excess quantities of calcium thus appearing in the urine must surely be a major factor in the production of stones in these patients. These stones are almost invariably calcium phosphate or carbonate in character. We have as yet no true idea of the circumstances or stimuli which induce bone cells to make new bone or what stimuli induce bone resorption. It seems very likely that the bone cells themselves are metabolically active in both of these procedures. We do know crudely that one stimulus to bone formation is exercise of the part and that immobilization or reduction of blood supply is conducive to bone resorption. Certain general stimuli also bring about bone resorption—for example acidosis and parathyroid hormone. Efforts should be made to determine the fundamental stimulus which is active in bone resorption in these patients. If it could be found, we might eliminate it and hence prevent atrophy of disuse. This would be getting at the problem at its

source. Should such fundamental information become available, we might be able to eliminate the problem of stone formation in these patients, at least reduce the problem of stone formation to the same level of frequency as occurs in the population at large.

DR. HUGH JEWETT, Baltimore: Dr. Howard has stated that his studies have shown that urinary calcium is not increased by the addition of milk to the diet. However, milk is exceptionally rich in phosphorus. According to Dr. Fuller Albright of Boston, per gram of protein, milk contains three times as much phosphorus as muscle. Since the stones under discussion are practically always composed of calcium phosphate, should or should not milk be excluded from the diet of these patients because of its high phosphorus content?

CAPTAIN BORIS P. PETROFF: I should like to answer Colonel Gage about thrombophlebitis. There were 2 cases, 1 from overseas with a terrifically big thigh, the other with a swollen leg which was assumed to be thrombophlebitis. I am surprised that there has been no question of suprapubic cystotomies, because when these patients first came in with a suprapubic tube in them it was mainly on the suggestion of Major Elkins that they were changed from suprapubic to urethral drainage. Major Elkins did a firm bit of insisting. I was all for leaving the suprapubic tubes in, but Major Elkins said to go ahead with the removal of suprapubic tubes. We made the change, the first patient developed epididymitis, and Major Elkins said to let it stay in—that it wouldn't hurt him. He is one of our prize patients, voiding with an automatic reflex bladder. As to periurethral abscess, we end up with a fistula and, when the patient begins to void, the urine runs out over the floor like a watering can. This is a great problem to us, and I should like the visiting urologists to suggest some way of repairing this penoscrotal type of fistula.

MAJOR JAMES J. JOELSON: In answer to the question concerning renal stones in Negro soldiers, we have seen none but we have had very few Negro patients. The points raised by Dr. Howard are interesting and important. Flocks has shown, however, that a high calcium diet will increase the amount of calcium excreted in the urine. Also the phosphorus content of milk must be considered, and since most of these recumbency stones are calcium phosphate it would seem much wiser and safer to eliminate milk from the diet, or at least keep its intake at a reasonably low level. Although ammonium chloride may mobilize calcium from the bones, still in some cases a properly acid urine will cause a dissolution of the stones which have already formed. If the patient can be kept under proper observation, the use of this drug seems justified in an effort to obtain the very desirable result of dissolving the stones.

MAJOR FRANK C. HAMM: We have had no cases of stone in Negro patients included in the series referred to in the paper. I can recall only 3 instances of urinary stone in the Negro soldier. These instances were observed before our present survey was carried out. I do not know how many patients we have seen or what the ratio to the white patients has been. It is my belief that the relative absence of stones in Negro troops is due to a racial factor rather than to their acid ash diet, as the food in the Army is the same for all soldiers. Pulvertaft has observed an increase in calcium output following prolonged exposure to sunlight in recumbency cases, and he advises against excessive exposure to sunlight. These observations should be repeated. We should not adopt a policy of excluding heliotherapy from these patients. I cannot believe that a moderate amount of sunlight is harmful.

Surgical Treatment of Decubitus Ulcers

CAPTAIN DONALD E. BARKER, M. C., A. U. S.: Of the 21 patients in this series 10 had only 1 ulcer; 5 had 2 ulcers, 4 had 3 ulcers and 1 had 5 ulcers. The ulcers ranged in size from 1 by 2 inches to 6 by 8 inches, covering the entire area over the sacrum. Seven patients had ulcers over one or both hips. As soon as a definite line of demarcation became apparent, the necrotic tissue was dissected away with scissors. From that time until grafting the ulcers were dressed with either boric acid ointment, urea ointment or an emulsion made by mixing 4 cc. of penicillin in 1 ounce of petrolatum. The appearance of the ulcer was not affected greatly by the type

of ointment used. When the ulcers had a clean base the operations were done. No attempt was made to get the areas bacteriologically clean. Split thickness skin grafts $\frac{1}{16}$ inch in thickness were used in 16 cases. The granulating area was shaved down to a yellow base when possible and the graft sutured into place. In a number of cases the ulcer was so close to the bone that no incision of the granulation tissue was possible. In all of the cases wet dressings were used for four days after operation. The principal problem met here was the inability of the patients to remain in one position for any period. In the constant changing of position by the ward personnel the dressings were moved about and accounted for the loss in some grafts. One patient with five large sores was grafted three times without success. His daily protein loss from the sores was 50 Gm. a day, and there was reversal of the albumin-globulin ratio.

A total of 30 operations have been done to date. Sixteen of these were skin grafts and 7 primary closures, 2 by basket weaving and 5 by rotation of a flap. Of the 30 cases 19 are healed at the present time; 27 per cent of the ulcers have about 50 per cent closure, and of the 30 cases there were 3 complete failures. In the rotation flap and the primary closure series the results were better than those in which split grafts were done. This is probably due to the fact that the split skin grafts were used in large ulcers and also in cases in which the condition seemed too poor to permit extensive radical surgery. Of the primary closures and rotation flaps 80 per cent healed after the first operation.

The following types of closures are recommended: In large ulcers of the back; i. e. those measuring about 4 inches in diameter, and also in cases in which there is extreme debilitation, split thickness skin grafts are the method of choice. In small ulcers measuring from 1 to 3 inches over the back the method of choice is excision of the ulcer and closure at the time of operation. In ulcers of the hip, skin grafting is not recommended. Even in the smaller ulcers of the hip it is recommended that a rotation flap be done. In ulcers from 1 to 2 inches in diameter a rotation flap with primary closure of the donor area is the method of choice. In large ulcers a large rotation flap to the ulcer area with split thickness skin graft of the donor area should be used.

It is estimated that the time saved in these ulcers varies from six months to two years, and in some of the larger ulcer areas it is probably a life saving measure to use split thickness skin grafting. An ulcer about 1 inch in diameter may take six to nine months to heal, whereas ulcers of the back such as some shown in this series without surgery would probably not be healed after five years. I believe that the excision enclosure of even as small ulcers as three fourths of an inch in diameter that have penetrated to the subcutaneous tissue should be done.

Primary excision and closure of small ulcers of the back is the method of choice. In large back ulcers or in patients who are very poor risks surgically skin grafting is successful and the recommended method. In hip ulcers a rotation flap is a quick method of a permanent closure.

The Nutritional Aspects of the Care of the Paralyzed Patient

CAPTAIN HAROLD A. HARPER, Sn. C., A. U. S.: It is now well recognized that malnutrition may occur as a result of disease or injury. The majority of paralyzed patients have lost a considerable amount of weight, particularly in the atrophic paralyzed extremities. Many also present evidences of generalized emaciation. The nutritional deficiencies of these patients are due to a number of factors. On admission to hospitals in the zone of interior nearly all have large, oozing, decubitus ulcers which are a source of considerable loss of protein. Infection is a common complication, with the result that depletion of reserves is accelerated. It is most important, therefore, that immediate attention be directed to an evaluation of the state of nutrition of these patients and that methods for correction of the malnourished state and the maintenance of an optimum level of nutrition be instituted. Protein losses by exudation may be extremely large: up to 50 Gm. in some cases. The so-called toxic destruction of protein, which is a concomitant of disease or injury, may account for considerable loss and, together with the wear and tear quota, one may find that more than 150 Gm.

of protein a day will be necessary to achieve nitrogen balance. The underlying injury or pathologic process may decidedly influence the mechanisms responsible for blood and tissue protein synthesis. A study of the blood proteins of these patients frequently reveals increased globulin and decreased albumin levels. This may be the only objective evidence of protein malnutrition, but it is to be considered as indicative of extensive depletion of protein stores. Recent studies have indicated that there is a definite metabolic partition between the plasma and the rest of the body. It is stated that each gram loss of plasma protein is accompanied by a loss of about 30 Gm. of tissue protein. When regeneration takes place, only 3.5 per cent of the nitrogen retained is used to replenish serum albumin, while 96.5 per cent is allocated to replace tissue protein stores. This explains why large quantities of protein may produce relatively little improvement in plasma albumin levels.

To use a determination of the total plasma protein as a diagnostic aid for assay of the state of protein malnutrition, one must take into account two important factors. For under certain conditions a normal value will be reported when there is actually protein depletion. These factors are (1) the effect of dehydration and (2) the presence of decreased levels of albumin accompanied by an increased globulin. As plasma protein diminishes, the water retaining power of the blood is also decreased. Fluid is lost to the tissue spaces, and increased concentration of the plasma will occur with a consequent decrease in total plasma volume. Quantities of protein which would be low in a normal plasma volume would then appear normal or even elevated. Conversely, when the concentration of the serum albumin is raised there will be an increase in the plasma volume, averaging about 17 to 18 cc. per gram of albumin retained. One clinical study reported increases in plasma volume of 600, 800 and 900 cc. in patients receiving 50 Gm. of albumin. Therefore as one replenishes plasma protein stores there will be a shift in fluid balance so that, for temporary periods at least, an increasing plasma volume will have the effect of reducing the actual concentration of protein.

Again, one may find that total protein is normal but actually there is hypoalbuminemia which is masked by an increase in globulin. This is particularly true where there is chronic infection, most of the increase occurring in the gamma globulin fraction, rich in antibodies. To obviate these pitfalls, red cell counts and hematocrit determinations should be obtained simultaneously with the plasma albumin and globulin in order to estimate the probable degree of dehydration. Although much emphasis has been placed on albumin globulin ratios, the plasma albumin content is actually the significant factor involved.

Correction of nutritional deficiencies in these patients may be expected to enhance greatly the success of all aspects of their care. Healing of the decubitus ulcers will be favored, as will the success of grafting procedures. As the extensive losses of protein from this source are diminished, it will become progressively easier to restore and maintain nitrogen balance. The patient can be expected to combat more successfully the chronic infection to which he is exposed. The efficacy of chemotherapeutic agents will be enhanced and wound healing materially improved.

The basal diet of these patients can ordinarily be the regular high protein diet of the hospital if there is no obvious impairment in their ability to digest or assimilate it. If the diet is properly consumed, one can probably depend on a daily nutritional intake of about 2,800 calories and 100 Gm. of protein. A much larger daily intake of protein will often be necessary to compensate for the losses in exudates as well as those of normal and abnormal metabolism. Additional protein must be allowed for the synthesis and replenishing of body proteins. One should set a protein objective to be attained daily by these patients—possibly 150 to 175 Gm., or more if tolerated. The other components of the diet are depended on to supply as much energy as possible in order to spare protein to a maximum degree for use in anabolic reactions. It may be desirable to increase vitamin supplementation. In the presence of anemia most of the administered protein is diverted to the synthesis of hemoglobin and it is not until the anemia has been corrected that satisfactory tissue and plasma protein

regeneration will occur. In these situations the use of whole blood is of value. To correct an acute deficiency of plasma protein, especially where there is frank edema, the administration of plasma or plasma albumin is ideal. But, in a chronic hypoalbuminemia due to malnutrition, plasma is of value but may be disappointing. For every gram of plasma protein which remains in the blood possibly 30 Gm. is removed by the rest of the body. To supply 2,000 Gm. of protein for the entire body requires 30 liters of plasma (120 donors).

From a nutritional point of view it would seem more physiologic to supply good quality protein in a more economical and assimilable form. This can be achieved by the use of certain protein concentrates or hydrolysates, several of which are commercially available. Two are hydrolysates of casein, the protein of milk, and are available for both oral and intravenous use. A third is a mixture of wheat, beef, milk and yeast proteins, for oral use only. It is usually possible and desirable in all of these cases to confine alimentation to the oral route. In addition to the advantage of providing as normal a regimen as possible, one must consider the fact that individuals whose plasma protein levels are dangerously low cannot tolerate intravenous fluids with impunity. To administer 100 Gm. of protein, as a 5 per cent Amigen solution, for example, requires the introduction of 2 liters of fluid. Such a procedure will not be well tolerated if continued for some time.

It is advisable that patients requiring intensive nutritional care be recommended to the attention of one dietitian who will be specifically assigned to the task of supplying adequate nutrition in these cases.

DISCUSSION

LIEUTENANT COLONEL CONDUCT W. CUTLER, M. C., A. U. S.: Forty-five of 67 patients admitted to Cushing Hospital had bed sores. Two of the 67 had slight progression of their bed sores after admission. No patient has developed a bed sore following entry. The bed sores are characteristically multiple; thus there have been 130 decubitus ulcers in the 45 patients. Important considerations in treatment have been found to be constant and repeated turning of the patient every two hours day and night, the use of small kapok pillows to prevent local pressure on sensitive areas (supporting the chest and pelvis on pillows in a prone position makes for comfort and better breathing), keeping patients dry at all times, adequate nutrition and attention to avitaminoses and protein deficiencies. In local treatment various applications have been tried, including petrolatum gauze, penicillin jelly, granulated sugar and a preparation of concentrated red cells with penicillin and agar. Of these the granulated sugar has proved particularly effective in diminishing pyocyanus infection and slough. Epithelialization seems to be rather more rapid under this treatment. Cleansing of the wound and rapid development of granulations of a healthy character have followed the use of a paste composed of concentrated red blood cells thickened with agar and containing penicillin. Associated with this type of preparation, secondary closure has been used in 17 cases and has proved most satisfactory in deep penetrating bed sores measuring not more than 7 cm. in diameter over the sacrum and 5 cm. in diameter over the trochanter. Penicillin is given forty-eight hours preoperatively and twenty-one days postoperatively. The wound is cleansed with saline solution, the edge of the decubitus trimmed away with complete undermining of the entire skin and subcutaneous tissue over the sacrum and low back out to the flanks for a distance of 8 to 10 inches, superficial to the gluteus muscle. Closure of the circular defect is performed with tantalum 0.010 suture in two layers, one for the deep fascia and one for the skin. No drain is employed. The wound is filled with penicillin solution, and the same solution is injected through the suture line into the wound area twice a day for ten days. Stitches are left in place for twenty-one days. In trochanter decubitus the treatment is the same. Three layers are usually required in the suture, as the sore frequently extends through the fascia lata and the gluteus maximus fascia. These are closed separately from the subcutaneous and skin layers. A plastic extension is always necessary. When complete suture closure has

been effected there has been no case of reopening or breaking down. Slower healing occurred in those cases which could not be completely closed.

LIEUTENANT MARK A. JACOBS, M. C., A. U. S.: Most of these patients come to us in a poor state of nitrogen balance and in mild acidosis. They have a hypoproteinemia with a reversal of the normal albumin-globulin ratio, avitaminoses, calcium metabolic changes with the formation of renal and cystic calculi, infected kidneys and bladders, and necrotic skin ulcers. The skin ulcers were a large possible source of inanition and nitrogen imbalance. These decubitus ulcers varied in size and number but in all cases were infected and oozing. Through the use of cellulocotton dressings of these ulcers we were able to obtain sufficient material for our experiments. By covering these ulcers with the pads for twenty-four hours and then doing a micro-Kjeldahl determination on the material contained on the pads, we found that these ulcers did have an important bearing on the nitrogen balance, hypoproteinemia and albumin-globulin ratio. One patient with 5 ulcers was found to have a total protein loss from these of over 40 Gm. in twenty-four hours. A tremendous increase in protein intake is necessary to obtain a zero balance, much less achieve a positive one, since to this ulcer loss must be added nitrogen loss through the usual sources, such as urine, feces and perspiration. Also add to this the anorexia and one can see how our problem becomes increasingly difficult of solution. As infection from all sources was brought under control, the nitrogen balance gradually tended toward zero and the albumin-globulin ratio showed improvements, but maintenance of infection control was almost impossible. A partial solution to the problem was found in the use of skin graft coverings for the decubitus ulcers. Where and when this was done, the protein loss through these ulcers became negative. The patient tends toward and approaches a positive balance and the albumin-globulin ratio tends toward normalcy. We are attempting to clear up all sources of infection. But there still remains the question of how to get enough proteins, enough calories and enough vitamins into these patients.

Ambulation and Support

CAPTAIN J. E. CAMERON, M. C., A. U. S.: In the treatment of paraplegia we define ambulation as the ability to get about by means of braces and crutches proficiently enough to care for oneself at home; to carry out the necessities of ordinary life without help.

The following expected results justify the initiation of an early and vigorous program of ambulation for each patient with a spinal cord injury:

1. The morale factor: Any advance in the ability of these patients to get about either in a wheel chair or on crutches causes an immediate improvement in their general outlook on life, their appetite and their general health.

2. Therapeutic exercise: In our 70 cases, 49 are incomplete or recovering. In many cases the prognosis cannot be given, even after direct inspection of the lesion at the time of laminectomy, and it may be many months before any recovery takes place. It is in this group of cases (which in our series represents 70 per cent) that the very early initiation of a program of ambulation is of immeasurable benefit. This benefit is derived from the passive exercise obtained in the swinging movements of otherwise paralyzed lower extremities. No amount of artificial or assistive physical therapy can make up the equivalent of such exercise.

3. Neurologic changes: For some unexplainable reason weight bearing on the feet seems to overcome pronounced clonus and involuntary mass movements seen in recovering cord injuries.

4. Improvement in general nutritional vasomotor functions: The resumption of the upright position is a great benefit in the general bodily tone and cardiovascular status.

The program at the Newton D. Baker General Hospital consists of (1) exercises to strengthen the muscles of the upper extremities used in crutch walking, with particular attention to the triceps and muscles of the shoulder girdle; (2) braces, which are ordered on the patient while his bed sores

and bladder are being treated (in cord lesions with little or no function in the abdominal musculature a thoracopelvic girdle is necessary); (3) a walker (the standard army walker is used, with a crutch type arm support); (4) crutches. Patients with high lesions require prolonged and tedious instructions in the art of paralytic walking. Normal walking is a complicated process for any biped animal. The only phase of the normal gait seen in a paralytic patient is that which takes place as the non-weight bearing extremity is allowed to swing, like a pendulum, forward; the paralytic gait is therefore fundamentally a succession of alternating pendular movements. Propulsion is obtained by the tripod action of each of the two crutches and the braced lower half of the body. Such walking involves swinging the pelvis and lower extremity by either the thoracic cage or the abdominal musculature, the force being transmitted through the braces. Since the gluteus medius muscle is paralyzed, it is necessary that the patient lean far to one side in order to raise the opposite extremity off the ground. This makes for a grotesque overmovement at first, which requires long practice before it is eliminated.

Any patient with a cord lesion at or below the tenth dorsal vertebra should be got into braces promptly and without waiting for recovery of muscle function below the lesion. We can extend to such a patient the hope of ambulation with crutches provided his upper extremities are intact. Patients with cord lesions as high as the second dorsal (provided their upper extremities are intact) may with prolonged practice and instruction be able to get around in braces, but to these patients we give a more guarded prognosis. For those patients with high lesions unable to use the walker, we initiate a prompt wheelchair program. The simple change of posture and the additional exercise incurred in moving a wheelchair are a great benefit to the patient.

The question of amputation of the lower extremities for irrecoverable loss of function as in paraplegia has been raised. The Council on Physical Medicine of the American Medical Association advises that amputation be performed only if simple amputation will offer a better prognosis in terms of appearance, comfort and function and if a sufficient part of the extremity possesses enough useful function to work well in a prosthesis. Certainly few, if any, cases of paraplegia would meet these requirements unless complicated by extensive bone or vascular damage.

In summary, early initiation of a program of ambulation for paraplegic patients raises their morale. Physical therapy may overcome clonus and mass movements in partial lesions and improve the nutritional state and vasomotor tone. Such a program consists of exercises for the upper extremities, the early fitting of braces and supervised instruction in paralytic ambulation, starting in a walker and progressing to crutches.

The Daily Care of the Paralyzed Patient

LIEUTENANT COLONEL DAVID HENRY POER, M. C., A. U. S.: The days when the patient who had received a spinal cord injury with resulting paralysis was treated as a troublesome and hopeless invalid are definitely over. The men of the Army Medical Corps can point with pride to the fact that they have led the way in bringing about such a complete reversal of this attitude and action and that they have met the issue with all the resources of the medical profession. The basis for the everyday routine in caring for the paralyzed patient at the Newton D. Baker General Hospital, Martinsburg, W. Va., is the purposeful development of a strong patient-doctor relationship. All matters of every nature, all supervision and management is directly the responsibility of the one doctor-officer under whose care these patients are placed. All personnel responsible for the care of these patients work directly under his authority. He must be familiar with everything that is being done for his patients. This relationship becomes of inestimable value to the patient himself in that he finds that he has a firm post to tie to and to spring from on his road back to a reasonably satisfactory mode of living. The time and method by which the doctor establishes, builds up and cements this relationship are during the daily ward rounds. These must be regular and systematic, at least

once daily, including Sundays and holidays. Other rounds made in the evening have proved to be of immense value, since those hours are usually free from the hurry, bustle and rush of the average hospital day and it is during these periods that the patient learns that his doctor not only knows his problem but also knows the solution. The complexity of the problem of the paraplegic requires this unusually time consuming program, but it pays large dividends in a manner not to be obtained otherwise.

The most important member of the treatment team is the hospital corpsman or ward attendant. We have given these men and women special training in the handling and care of paralyzed persons. The duties of these attendants are chiefly concerned with the care of the bladder and bowel, changes in position of the patient and aid in ambulation. Assistance is also given in the changing of bed linen and mattresses and in feeding the patient. The use of special frames for turning the patient (Stryker) have not been found necessary when the attendants carry out their duties properly in shifting the areas of pressure on the body.

The next in this therapy group are the technicians, who carry out physical therapy, and all this work blends readily into a reconditioning program consisting of exercises that will give the individual the necessary massive shoulder girdle to substitute for leg motion. Special urologic technicians or male nurses carry out all but the simpler procedures necessary to keep the urinary tract free from infection. Brace makers, Red Cross social and recreational workers, librarians, education and vocational instructors are some of the many workers needed.

The nurse shares with the doctor the responsibility of carrying out the necessary details of treatment and must be his listening post and intelligence department to acquaint him with all information, to advise and to make suggestions as are needed in order to obtain the desired results. She must supervise the work of the attendants and technicians.

In addition to the recreational programs given by Red Cross personnel, attention must be paid to their religious needs. Chaplains pay daily visits, and effort is made to take the patient to the chapel services. Personal guidance and counsel are provided to take care of all legal and business matters as well as domestic problems, where adjustments must be made by wife, children and other family members. An educational program is set up to fit the needs of each individual, and this must fit into the vocational plans to provide a livelihood after discharge.

Since the original injury is to the spinal cord, it is with the neurosurgeon that the launching of the original plan must rest. The urologist has more actual daily contact with the patient until an automatic function of the bladder has been established and infection brought under control. The internist, especially the nutrition expert, has his important function, the results of which are hastened by successful plastic surgery by closure of the decubitus ulcers. The orthopedic and the general surgeon likewise have their part in the treatment of associated conditions or complications.

Nothing has been said about the field of research which has been opened by the study of the results of this type of injury. The control of decubitus ulcers has been partially solved by increase in our knowledge concerning protein and nitrogen metabolism, and attempts are being made to control or prevent infection in the urinary tract. The sulfonamide drugs and penicillin have been of inestimable value, but the problem of the gram-negative organisms remains. Further information concerning calcium metabolism is required, as well as all metabolic processes in paralyzed tissues. Good morale in a paraplegia ward can best be obtained by treating patients in groups and perhaps later in a specially constructed and equipped colony where they can become self supporting and by following the outline just given. This will convince the patient and his family that everything is being done to cure his immediate ailments, get him to walking again, develop a degree of bladder and bowel control, teach him a gainful occupation and discharge him promptly. After that the morale factor of the paraplegic becomes no factor whatever.

The Future of the Paraplegic

LIEUTENANT COLONEL CALLEB S. STONE, M. C., A. U. S.: We have learned much from our small group at Wakeman General Hospital with regard to the economic adjustment that will be necessary. It may be plainly stated that some of these patients, particularly the younger untrained and unmarried men, feel that the pension of \$150 a month plus the \$100 a month allowed for an attendant that will be paid on discharge from the Army will always be adequate to meet their needs; others are anxious to work because they need the additional income. In our small group there are 3 men who have been promised jobs by their old companies provided they are ambulatory in wheelchairs; 2 men come from families who own a business in which the soldier can be productively employed in a wheelchair. Further efforts to rehabilitate and reeducate the paraplegic is a responsibility that should be met because a reasonable percentage of them can, if rehabilitated, adequately return to gainful employment.

Domestic adjustment will be difficult. Obviously single men in this group will rarely marry unless they are picked up by some one seeking a meal ticket. Doubtless many of the married men will separate from their wives. Some of the married men who have children will not separate from their wives because of the children. In any event, this is purely a personal problem. The responsibility of a governmental agency could only go so far as to provide a man with the necessary physical reconditioning and training.

Since the subject given to me is "The Future of the Paraplegic" I may be justified in offering a plan for the care of the paralyzed soldier, based on observations with a small group of patients but a group which may well be considered a cross section of the total number of the paraplegic. It would seem pertinent to suggest that the Army create a center for the rehabilitation of the paraplegic. If an adequate number of beds could be made available and an adequate staff, it might well be that patients yet to sustain injury to the spinal cord could also be best treated during the early stages of their disability in such a center. The primary purpose, however, of a center for the rehabilitation of the paraplegic should be to accept patients after initial definitive care has been completed. One might estimate that the average stay in such a center would run from eight to twelve months. The purpose of such a center would be to complete the physical reconditioning of these men, equip them with the muscular development of the trunk and shoulder girdle so that they may become completely ambulatory in braces or wheelchair, so that they may withstand the strain of continued physical effort while seated, and to educate them so that they may become able to care for themselves in every respect; to give them vocational training suited to their ability, their past experience or to opportunities awaiting them or to give them the education and training necessary to open up for them new fields of endeavor for which they have talent or desire—fields of endeavor which in the past have not been available to them—and so to rehabilitate and reeducate them that they can return to a civilian status without being dependent the rest of their lives on institutional care, which at best does not give a person any reason or purpose for remaining alive.

Such a center should be placed in a suitable climate, one that permits outdoor activity pretty much the year round, where extremes of temperatures are not encountered.

Such a center should be housed in one story structures to permit easy access outdoors to men in wheelchairs or on crutches. The housing facilities should be fireproof unless they are all one story structures close to the ground. If a multiple story structure is used, it would of necessity require adequate elevator facilities. Such a center should be on the main line of a railroad in the community where adequate and suitable housing facilities are available for the many visitors who should come to patients of this type. The necessity for a work program might well demand that such a center be placed with reasonable proximity to industry and also somewhat removed from a locality where labor is superabundant.

Such a center would require adequate personnel, both in training and in quantity. Neurosurgeons, urologists, internists and a general surgeon would all be required in proportion to the number of beds occupied. In addition, properly trained

physical reconditioning men would be necessary, an adequate brace shop, a large physical therapy and occupational therapy department, nutrition officers and dietitians.

When one considers the vast number of questions raised by this group of patients the answers to which are unknown, it becomes obvious that such a center should have associated with it a comprehensive research program.

The key personnel referred to would necessarily be men with an interest in and an appreciation of the problem of the paraplegic. Above all, such a center would require sympathetic, imaginative and understanding direction from its commanding officer.

DISCUSSION

COLONEL ROBERT H. KENNEDY, M. C., A. U. S.: When we first received these patients, they came in rapidly and their morale was bad. Since the program was developed, the morale in the paraplegic ward is better than in any other ward in the hospital. I went on a two months mission last fall. When I left, the neurosurgical center had just been organized. On my return it had received about 600 patients and among these was a group of 39 paraplegic enlisted men and 2 officers. Their morale was bad, and it was hard to go into that ward. I went on a Christmas leave and found on my return that a young lieutenant had gone to the commanding officer a few days before Christmas and said "We've got 39 men over there in the paraplegic ward. Christmas is coming and many of these men have their families here. I don't know whether they'll be alive next Christmas but they're here this Christmas and I want every one of these men to have their families here for Christmas dinner." The first answer was "No." This ward officer was a first lieutenant who had been in the Army four months. He said "I demand that these men be allowed to have their families here for Christmas dinner. These men deserve it. They have given everything to their country. They deserve to have their families here and, damn it, they're coming to dinner." They had 140 in that ward Christmas day for dinner. The Red Cross arranged for bridge tables at each bedside, with candles, fancy table cloths, comfortable chairs. Enlisted men, Wacs and nurses from other wards volunteered to come over and help serve the dinner. It did a great deal for the hospital morale for this officer to insist on this being done. The most pleased person in the whole group was the commanding officer, who presided most graciously over the whole affair. When you need more rubber tubing, irrigating bottles or walkers and are told they cannot be obtained, there is no such answer. Every one should take the attitude that there is no such answer as "No" to their needs. The changing of personnel in the ward is the most difficult thing we have to deal with. The enlisted men, nurses and officers in charge should be left to continue in the same place. But don't forget that this is a terrific job that these people are doing and we have to caution the wardmaster and the nurses to let us know if they are feeling the strain. Some may stand it for six weeks, others six months. There has been little said about the dressing of wounds. It should be put in charge of some one person who will take an interest. The medical officer can't attend to all these cases and should make ordinary dressings the responsibility of some one nurse. I feel that patient officers sometimes do not get as good treatment as enlisted men. I believe that the officer paraplegic should be put in the paraplegic ward and see what the other men are doing. It is a big morale builder. I wonder if it would be possible to keep in the service certain men at each one of the neurosurgical centers who are paraplegic themselves, who have been kept in the service as discharged hospital patients and who can train these men and be a morale builder among them.

LIEUTENANT COLONEL THOMAS P. SHEARER, M. C., A. U. S.: There is little in the literature on the operative treatment of decubitus ulcer. At Halloran General Hospital Captain Croce, chief of general surgery, has devised a scheme for closing these ulcers by rotating full thickness grafts from adjacent areas. Our preoperative management seeks to obtain a cleanly granulating wound free from infection and sloughs with fixed edges showing signs of epithelial invasion. Some of these ulcers are 12 to 15 cm. wide and 10 to 12 cm. long. The

ulcer is excised, then curvilinear incisions are made on each side both above, along the iliac crest, and below into the buttock. The large flaps so outlined are raised from the gluteal fascia. By rotating these four flaps toward the middle of the defect and approximating them to one another the defect may be completely closed with a layer of skin and normal subcutaneous pad, which thus far has seemed capable of withstanding all the abuse of the normal skin of that area. We have used a fine silk technic throughout with 000000 black silk. We have had no experience with Thiersch grafts because we have felt that the treatment as outlined is universally applicable, although some of the larger ulcers at first had to be closed in two stages. Moreover, we have felt that the end result is more durable than that of split thickness grafts applied directly over the sacrum. Some of the latter have broken down repeatedly until we covered them with sliding full thickness grafts. We have come to conclude that operative wounds in these paraplegic patients will heal fully as well as they will in other young adults whether the wound lies in an anesthetic area or not. By the simple closure of the decubitus ulcer the nursing care is greatly reduced; the patient is ready for a more advanced program and his morale is greatly elevated.

COLONEL CLAUDE BECK, M. C., A. U. S.: What we have heard in this symposium should not be regarded as the last word. We are only at the threshold in the care of these patients and I don't think we are going to stop where this symposium ends today. I should like to have a picture of what happened to the group of paralyzed patients in the last war; to see graphs on the duration of life and the causes of death; to know how many of the patients were taken care of in the veterans' hospitals and how many were able to be taken care of at home. After they arrived at their homes I should like to know what they were able to do, how much care they needed, whether any of them were able to earn a livelihood; I should like to know something about the composite picture of experiences to date in this present war. I understand that there are about 1,000 paraplegic patients in this country at the present time and that there are also additional patients abroad. We ought to have a composite picture of the course these patients have taken up to the present time. We have all been favorably impressed by the progress that has been made in the care of these patients. The picture, impressive as it is, is not as good as I would like it to be. I am disappointed in the matter of ambulation. These patients really do not get around very well. If they were to be discharged to their homes, I am doubtful whether they would get around well enough to go out on the street. Colonel Gage and I have been wondering about the advisability of bilateral amputation of the legs. Could the patient ambulate himself better if he did not have his legs? I should estimate that the legs weigh 40 to 50 pounds. With complete transection of the cord, the legs are absolutely useless in ambulation. What they actually do is to elevate the center of gravity from the ground, a distance of about 4 feet; they act like a pair of stilts and the patient is in constant fear of falling. Should we not amputate the legs? If this should be done the patient could get around much better, he would have less weight to pull after him, he could sit on a platform which has wheels under it and ambulate himself by means of his arms and he could also get around in a small motor vehicle. I am aware of the fact that we are not attracted to this idea of leg amputation because the body is mutilated by this operation and we don't like to mutilate the body. If it weren't for this aspect of the problem, I think we would all agree that amputation should be done. It does seem to me that, if any individual desires to have his legs amputated, the operation should be done and the results recorded. Captain Cameron was asked to look up the literature and he told me that he was unable to find anything on this subject.

CAPTAIN JOSEPH J. MICHAELS, M. C., A. U. S.: To the soldier with a cord lesion the reality of his disability is very obvious. There is the objective fact of his being handicapped and failing in the ability to cope with life's situations. As a result it is natural to expect a certain amount of despondency and depression, which are consistent with the reality situation. With such a great degree of disability when neurotic com-

ponents develop, it is difficult to distinguish these subjective features because the objective aspects are so obvious. In contrast to the reaction of soldiers with paralysis, the soldiers presenting scars, deformities and even amputations, although somewhat handicapped, are not as severely affected from a reality standpoint. Here a much greater degree of neurotic factors is present, so that their reality situations may be considerably distorted. During the hospitalization of these patients they are surfeited with the attentions of many individuals. The suspicion arises that, just as the patient tries to deny the seriousness of his condition and avoids facing his reality, so those who deal with him similarly may conceal from themselves the seriousness of the problem. This statement is not to dampen the ardor of optimism that has been manifested but to arouse the necessity of perhaps being somewhat more neutral and questioning what we are doing. Captain Cameron has indicated to what extent the morale of these patients rises as they find themselves learning to walk. Doubtless this is comforting to the patient and offers him something to grasp at. It is my feeling that the patient's despondency is related not only to his inability to walk but to the whole general picture of helplessness. He is unable to carry on in many spheres. It is not only an impotence in walking but the realization of a pervasive impotence in the spheres of sex, work and society. Much effort has been expended in teaching the patient how to take care of himself. However, this teaching is more in the periphery of his personality, such as taking care of his bladder, bowels, muscles, appetite, eating, talking and doing things with his hands. Such activities are of course necessary, but it is believed that if the patient came to terms with the reality of his illness and settled this problem once and for all there would even be a greater participation in his attempts at helping himself. The doctor-patient relationship mentioned by Colonel Poer might be more fully utilized by permitting the patient to unburden himself as to just how he feels about himself in his paralyzed condition. What ambitions of his have been frustrated? What kind of a world will he be returning to? Who will be able to concern themselves with him as has been the case in the hospital? To what extent can we help him overcome the psychologic dependence that will have developed because of his actual physical dependence? He will have to learn to deal with his emotions in as independent a manner as he is learning to take care of his body. In regard to Colonel Beck's provocative question of the possibility of amputating the lower extremities, one must evaluate the relative gains of such a procedure over psychologic reactions to the loss of members of the body. Would we be adding another severe psychologic trauma to the severe physical trauma already present? How will the patient react to being regarded as a cripple? How will he feel about his appearance? In the Army there is a tendency to abbreviate, make short cuts and use symbols wherever possible. The very nature of war with its emergency features may call for such terminology. However, military expediency may unwittingly bring with it certain medical disadvantages. For example, to label a soldier an "amputee" to make us overlook the fact that there is always the soldier as a person with an amputation. We regard him as an amputated individual, concentrating on the amputated part when we call him an amputee. In like manner I should like to suggest that we always remember and refer to the patient who has a spinal cord injury with a resulting paralysis primarily as a patient with paralysis and not as a paralyzed patient.

LIEUTENANT COLONEL MARVIN P. KNIGHT, M. C., A. U. S.: One of my patients, a girl, had suffered from poliomyelitis since the age of 3, with the loss of the use of both legs. At the time I saw her the entire lower leg was some 18 to 22 inches in length. She walked with crutches very well. She could swing herself on a carrier a foot higher than her buttocks. I have seen other patients—one with an amputation of one leg above the knee, the other leg amputated below the knee. He walked very well and the only time you could tell that he had a prosthesis was by watching him go up and down a stairway. Prosthetic appliances have been so developed, especially since the application of aluminum, which makes them very light, that I would venture to say that a paralyzed patient

here who can walk 10 to 20 yards could walk a half mile following the application of a prosthesis correctly fitted. Of course, it is the problem of muscle transplants which have been carried out on poliomyelitis which aid a person to hold his body erect. With adequate muscle transplants from the abdomen and from the back, a patient's load would certainly be lessened following the removal of one or more extremities. The average patient can become ambulatory as long as two hinges are involved, but when a third hinge or the pelvis is encountered it is a very difficult problem.

CAPTAIN BORIS P. PETROFF: I was especially impressed by the new appliances to help patients help themselves. We have established bars in the latrines so that the men can help themselves on and off the commodes. In his paper Lieutenant Colonel Stone stated that patients were encouraged to take their own shower baths. This idea of a man taking a bath is a brand new one and we are going to try to emulate it as soon as possible. Captain Michaels has been a great help to us in the ward. We had 1 patient with complete negativism after bad news from home and only treatment by Captain Michaels snapped him out of it. Another problem is this question of sex. They can see, hear and feel and yet have no way of expressing the sex urge. Those who are married and have children are always glad to see their wives. Those who are not married and those who have no children are greatly frustrated. By certain remarks they make, the pictures they draw and the statues they make, you can see what is going on in the back of their minds. It is most important to have the neuropsychiatric service help them to adjust themselves to the outlook of the future without sex life.

Postmortem Findings in Six Cases of Traumatic Transverse Lesions of the Spinal Cord

CAPTAIN HENRY RAPPAPORT, M. C., A. U. S.: This is a report of 6 cases at Nichols General Hospital in which death occurred from complications of transverse lesions of the spinal cord. In 5 instances the fatal condition developed as a complication of the genitourinary tract infection, in the sixth from a complication of a deep sacral decubital ulcer.

Although these cases vary considerably as to their pathologic manifestations they have the following features in common: (1) the extreme emaciation at the time of death, (2) the severe secondary anemia and (3) a type of inflammation spreading by direct extension without respect for anatomic barriers such as fascias, periosteum, serosal membranes or capsules of visceral organs.

The type of inflammation found suggests strongly a pronounced decrease of the general and local resistance to infection. This lack of resistance is further evidenced by the type of organisms found in 3 of the cases in which pure cultures of gram negative bacilli were recovered from the postmortem blood. The same organisms were also found in the local lesions. In spite of the usual low pathogenicity of the organisms of the coli-aerogenes group they were apparently able to cause continued suppuration and septicemia in these debilitated patients. It has been shown that resistance to infection is considerably decreased in hypoproteinemia and that, once infection develops, the regeneration of blood protein is much more difficult. It is therefore suggested that the type of inflammation found in these hypoproteinemic patients was largely due to such lack of resistance, particularly lack of local tissue resistance. According to a recent publication the loss of tissue protein is much more severe than is indicated by the low plasma protein; the reduction to 1 Gm. in the circulating plasma is equivalent to a loss of 30 Gm. of body protein (Elman and others). It is suggested that the severe protein depletion of the tissues might account for their decreased resistance to infection. In all our cases anorexia developed sometime during the course of the disease, and the food intake was inadequate.

Although the number of cases presented is small, it seems to afford further evidence that there is a causal relationship between the degree of protein deficiency and the extent and severity of the inflammatory process. A vicious cycle is established whereby hypoproteinemia decreases resistance to infection, and, once infection develops, the regeneration of body proteins becomes more difficult.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Psychiatry, New York

101:717-860 (May) 1945

- Psychiatry and the U. S. Navy. R. T. McIntire.—p. 717.
Psychologic and Psychiatric Reactions in Diving and in Submarine Warfare. A. R. Behnke.—p. 720.
Psychopathology of Selected Population of Naval Offenders. J. D. Teicher.—p. 726.
Spain as Cradle of Psychiatry. P. Bassoc.—p. 731.
*Prefrontal Lobotomy: Problem of Schizophrenia. W. Freeman and J. W. Watts.—p. 739.
Prefrontal Lobotomy: Fifteen Patients Before and After Operation. J. A. Kindwall and D. Cleveland.—p. 749.
Medical View of Menopause. T. Owen.—p. 756.
Follow-Up Study on 93 College Students with Epilepsy. L. E. Himler and T. Raphael.—p. 760.
Intelligence of Normal and Epileptic Twins. W. G. Lennox and A. L. Collins.—p. 764.
Developmental Roots of Schizophrenia. J. S. Kasanin.—p. 770.
Relationship of Psychoanalysis to Psychiatry. R. P. Knight.—p. 777.
*Spontaneous Convulsions Following Convulsive Shock Therapy. B. L. Pacella and S. E. Barrera.—p. 783.
Use of Demerol in Artificial Fever. T. J. Hieldt, N. P. Dallis and W. J. O'Connell.—p. 789.
Psychiatric Internship. G. B. Pearson and Kathryn L. Schultz.—p. 793.
Clinical and Electrophysiologic Observations Following Electroshock. L. D. Proctor and John E. Goodwin.—p. 797.
Correlation of Results of Sodium Amytal Narcosis and of Convulsive Shock Treatment. R. A. Clark, R. H. Kiefer and M. J. Gerson.—p. 801.
Conditioned Aversion Treatment in Chronic Alcoholism: Preliminary Report of 100 Cases. J. V. Edlin, R. H. Johnson, P. Hietko and G. Heilbrunn.—p. 806.
Psychotic Profiles and Sex Profiles Shown by Test Battery. L. S. Penrose.—p. 810.
Freudianism and Psychoanalytic Tradition. J. Wortis.—p. 814.
*Electronarcosis Therapy in Schizophrenia. Esther B. Tietz, G. N. Thompson, A. Van Harreveld and C. A. G. Wiersma.—p. 821.
Psychiatric Observations in Combat Area in South Pacific. J. M. Henninger.—p. 824.

Prefrontal Lobotomy in Schizophrenia.—Freeman and Watts maintain that schizophrenic patients are the most difficult to relieve by prefrontal lobotomy. The problem is much simpler with anxiety states, involutional depressions and obsessive tension states. Prefrontal lobotomy in schizophrenia is often unsuccessful when carried out as far forward as the plane of the coronal suture. The thinking patterns persist, and there is still enough of an emotional component to dominate the behavior. A lobotomy far enough posterior to the plane of the coronal suture to bring about such symptoms as reflex grasping and groping, with transitory Babinski sign and prolonged incontinence, will usually succeed in abolishing the emotional charge attached to the abnormal ideas, although at the expense of severe disability in the social adjustment. Every millimeter the subcortical incisions are placed posterior to the coronal suture prolongs the patient's convalescence. The authors are inclined to undertake prefrontal lobotomy in a chronic schizophrenic patient with the expectation of eventually performing a radical operation. If there is relatively good preservation of socially acceptable habits, they are inclined to incise the frontal white matter in the plane of the coronal suture, but with the understanding that a more extensive operation may have to be undertaken should the patient's condition remain unchanged. The authors have observed 50 schizophrenic patients over a period of two to seven years following prefrontal lobotomy. Slightly more than half of the patients are usefully occupied and less than 1 in 5 is institutionalized. While some chronic patients cannot be discharged from hospitals, their care is greatly simplified because of their new objective outlook on life and pleasure

in living. Prefrontal lobotomy is the procedure of last resort. This does not mean, however, that it should be delayed until emotional deterioration is well advanced.

Spontaneous Convulsions Following Electric Shock Therapy.—Pacella and Barrera say that of over 500 patients who received electric convulsive therapy 2 exhibited spontaneous generalized convulsions six and one half to eight weeks after termination of treatment. These 2 patients had never had seizures prior to treatment, nor were there epileptic manifestations in any of the family members. In both instances the brain wave tracings were abnormal prior to shock. It is concluded that spontaneous convulsions following convulsive therapy are prone to occur only in those patients who have latent convulsive tendencies as revealed by electroencephalograms. The suggestion is made that preshock electroencephalograms are particularly indicated for patients who give histories of previous convulsions in childhood or later life or who have family members exhibiting epileptic manifestations.

Electronarcosis in Schizophrenia.—Tietz and her associates say that a means to increase the benefit obtained by electroshock was sought in electronarcosis, which has been studied in experimental animals for the last forty years. This is a method of prolonged application of the electric current to the brain, causing a controlled state of unconsciousness preceded by a modified convulsion. Much preliminary work was carried out on animals before adapting electronarcosis to human subjects; more than 100 electronarcoses were induced in 9 patients without serious complications, and it was concluded that the method is without danger when cautiously applied. The present study is an evaluation of electronarcosis based on the treatment of 47 cases of schizophrenia. Over 1,000 treatments have been given without fatality or significant complications. The therapeutic effects of electronarcosis in a group of schizophrenic patients were superior to those expected of electroshock treatment and about the same as results expected from insulin shock therapy.

American Journal of Public Health, New York

35:553-674 (June) 1945

- Uses and Value of Industrial Vital Statistics. Ruth R. Puffer.—p. 553.
Industrial Health Records: Industrial Hygiene Survey. J. J. Bloomfield.—p. 559.
Industrial Medical Records: Some Legal Considerations. T. V. McDavitt.—p. 568.
Control Measures Against Importation of Disease by Men Returning from Overseas Duty. T. G. Ward.—p. 572.
Physical Fitness and Health Problems of Adolescent: Physiologic and Emotional Problems of Adolescent. L. K. Frank.—p. 575.
Id.: Health Service in High School—What It Can Offer. W. M. Schmidt.—p. 579.
Id.: Evaluation of Adolescents' Health. J. R. Gallagher.—p. 584.
Appraisal of National Problem for Medical Care (After Ample Opportunity to Study the Proposals). W. G. Smillie.—p. 587.
Sickness as Index of Need for Health Supervision of School Child. J. Downes.—p. 593.
Plan of Fort Greene Industrial Health Committee. J. H. Landes.—p. 602.
Current Problems in Filariasis. H. W. Brown.—p. 607.
*Active Immunization with Purified Somatic Antigens of Eberthella Typhosa, Salmonella Paratyphi and Salmonella Schottmuelleri. H. R. Morgan.—p. 614.
Is Dermatophytosis a Significant Occupational Health Problem? S. M. Peck and L. Schwartz.—p. 621.
Relationship of U. S. Public Health Service to State and Local Health Units. E. S. Tisdale.—p. 625.
Tips and Tricks for Practice. S. Zimand.—p. 631.

Active Immunization with Purified Somatic Antigens of Enteric Organisms.—Using an alcoholic precipitation technique, Morgan obtained a purified antigen from cultures of Eberthella typhosa which had been grown in synthetic medium, thereby avoiding contaminating materials which might have been derived from the usual complex culture substrates. The antigen produces a good immunogenic response in man in subcutaneous doses, although it is highly toxic for human beings when injected intravenously. Morgan made a comparative study of the purified somatic antigens of other organisms of this group and of triple typhoid (T. A. B.) bacterial vaccine for human immunization. He found that purified antigens prepared from E. typhosa, Salmonella paratyphi and Salmonella schottmuelleri cultivated in synthetic mediums produced less local and constitutional reactions than a triple typhoid bacterial vaccine when injected subcutaneously in man. Purified somatic antigens in

total dosage of 0.12 mg. for *E. typhosa*, 0.048 mg. for *S. paratyphi* and 0.048 for *S. schottmuelleri* produced higher titers of mouse protective antibody than did 2.5 cc. of a standard triple typhoid bacterial vaccine. These purified antigens possess the advantages of potency, stability and compactness.

Archives of Dermatology and Syphilology, Chicago

51:359-424 (June) 1945

- Ecthyma Contagiosum in Man: Data Concerning Its Incidence in Several Western States: Report of Case. L. B. Kingery and J. Dahl.—p. 359.
Recurrent, Resistant Vesicular Eruption of Hands. J. H. Blaisdell and J. H. Schwartz.—p. 365.
Nevus Seborrhoeicus et Sudoriferus: Unilateral Linear Physiologic Anomaly. H. L. Arnold Jr.—p. 370.
Dementia Paralytica and Wassermann Reaction of Spinal Fluid. A. Krakauer.—p. 373.
Melanin Production in Skin: II. Further Historical Observations. H. Sharlit.—p. 376.
Cutaneous Tumors of von Recklinghausen's Disease (Neurofibromatosis): Report of Histologic Study, with Special Reference to Nerve Fibers and Bodian Stain. D. J. McNairy and H. Montgomery.—p. 384.
*Cutaneous Detergents: Experience with Ether Sulfonate Compound. B. T. Guild.—p. 391.
Severe Systemic Reaction to Bee Stings. M. E. Obermayer.—p. 396.
Low Potassium Diet in Treatment of Psoriasis. E. B. LeWinn and E. Urbach.—p. 398.
Cutaneous Reaction of Persons with Atopic Eczema to Human Dander: Result of Patch Tests on Scarified Skin. F. A. Simon.—p. 402.

Cutaneous Detergents.—Analysis of a survey of several thousand persons in various occupations disclosed that over 34 per cent believed that soap caused dryness, scaling, itching or burning or some combination of these symptoms. Guild states that soap and a variety of substitutes for soap do not fulfil all the qualifications of a desirable cutaneous detergent. Most of the available synthetic detergents are true sulfates and contain the hydrolyzable acid sulfate radical. Hence they release small quantities of sulfuric acid. This may be a contributing cause of the irritation produced by these sulfated compounds. Most of these synthetic agents contain sulfur joined directly to the oxygen atom and that, in turn, to a carbon atom, chemically represented as $R-O-SO_2-OH$. An ether sulfonate, however, contains the sulfur joined directly to a carbon atom, $R-SO_2-OH$. The latter compound cannot hydrolyze to produce sulfuric acid, as the bond $R-S$ is extremely strong. A detergent cream composed of petrolatum, wool fat, cholesterol, lactic acid and a sulfonated ether has been used for five years in private practice and in clinics of the Massachusetts General Hospital. The detergent lowers surface tension of water considerably more than does soap and is an active emulsifier of all types of oil. These properties make the cream about 40 per cent more active than soap. It is more rapid in action than soap and requires less water and less friction to produce suds. The cream, as well as the suds it generates, has a pH value of 5.5, which corresponds to that of the average normal skin. The cream is active under acid, alkaline and neutral conditions and when used with either hard or soft, cold or hot water. When used with sea water it is a good detergent and produces suds. The preparation is no more toxic than soap would be if accidentally ingested.

Archives of Otolaryngology, Chicago

41:395-470 (June) 1945

- *Analysis of Colds in Industry. J. H. Kler.—p. 395.
*Penicillin and Primary Suture in Treatment of Acute Surgical Mastoiditis. L. F. Johnson, L. Weinstein and P. S. Spence Jr.—p. 408.
Practice of Otorhinolaryngology in Army General Hospital. I. J. Hauser.—p. 413.
Bárány and Galvanic Tests: Their Value in Diagnosis of Labyrinthine and Intracranial Disease in Presence of Suppurative Otitis Media. B. Rachlis.—p. 422.
Transpalatine Operation for Congenital Atresia of Choanae in Small Child or Infant. L. W. Ruddy.—p. 432.
Anesthesia for Tonsillectomy Induced by Intravenous Administration of Pentothal Sodium. S. L. Fox and S. Roehberg.—p. 439.
Unusual Foreign Body of Nose. V. S. Steele and E. C. Dow.—p. 441.
Progress in Otolaryngology: Summaries of Bibliographic Material Available in Field of Otolaryngology. Survey of Literature on Tuberculosis, 1940-1943. G. E. Wilson, assisted by W. K. Stern.—p. 442.

Colds in Industry.—Colds are responsible for more than one third of the total number of days lost in American industry. They cause a loss of 100 million working days each year. There is a definite pattern to the incidence of colds, with the

highest peak in December (or December-January) and a lesser peak in October. July is the month of the lowest incidence of colds. Sudden drops in temperature are followed by rises in the incidence and in the severity of colds. Both incidence and severity are much greater among office workers than among factory workers and greater among women than among men. A majority of the colds in women appeared at the time of the menstrual period. There is decreasing incidence of colds with increasing age. The severity of colds increases with age. There are fewer colds in air conditioned plants. The incidence of colds is highest in drafty places. More colds start on Monday than on any other day of the week. This is especially true of colds among men. Posture is an important factor in that the incidence and the severity of colds are lowest among those whose work necessitates walking about most of the time. Early therapy seems to be of greatest value.

Penicillin and Primary Suture in Acute Surgical Mastoiditis.—Johnson and his associates report their experience in treating 23 patients with acute surgical mastoiditis by primary closure of the wound and instillation of penicillin into the mastoid cavity. Seventeen patients showed complete cure after one course of treatment, while 6 remained well after a second course of penicillin. The recommended dose of the drug is 10,000 units every eight hours for four days (a total of 120,000 units). Local application of penicillin in the mastoid cavity through a ureteral catheter after mastoidectomy appears to be a feasible and practical procedure. When this drug is given in proper dosage, healing of the postaural wound and a dry external auditory canal usually are present on the fifth post-operative day. In cases in which aural discharge recurs, reinsection of the catheter and reinjection of penicillin for an appropriate period of time produce complete clearing of the discharge. Local treatment with penicillin seems preferable to the use of sulfonamide compounds for infections with *Staphylococcus aureus*, hemolytic streptococci and other organisms susceptible to the antibiotic agent because of the absence of any harmful toxic effects, the slight risk of sensitization and the increased speed of healing.

Arizona Medicine, Phoenix

2:139-208 (May) 1945

- Looking at Medicine. C. P. Austin.—p. 159.
Castless Ambulatory Treatment of Fractures: Report of 23 Applications of Roger Anderson Skeletal Fixation Appliance. M. Cohen.—p. 162.
Early Care of Concomitant Monocular Strabismus. V. A. Toland.—p. 166.
Relation of Doctor to Hospital. E. F. Boyd.—p. 167.
American Medicine Tomorrow. M. F. Cahal.—p. 171.

Canadian Medical Association Journal, Montreal

52:543-656 (June) 1945

- Pathology and Treatment of War Wounds. F. G. Kergin.—p. 543.
Penicillin Creams. P. Greer and H. D. Hebb.—p. 550.
*Observations on Salicylate Therapy in Rheumatic Fever. J. D. Keith and A. Ross.—p. 554.
*Prevention of Acute Rheumatic Fever. C. W. Fullerton.—p. 559.
Management of Preeclampsia. N. J. Eastman and P. P. Steptoe.—p. 562.
*Use of Penicillin in Ludwig's Angina. D. M. Bean and W. C. MacKenzie.—p. 568.
Studies Concerning Effects of Various Hormones on Renal Structure. H. Selye, Helen Stone, K. Nielsen and C. P. Leblond.—p. 571.
Present Status of Internal Fixation of Fractures. A. L. Murphy.—p. 582.
Transplantation of Peritoneum in Treatment of Direct Inguinal Hernia. A. M. Vineberg.—p. 587.
Anthrax: Its Incidence and Therapy, with Report of Case. A. F. Perl.—p. 592.
Exomphalos. S. S. Peikoff.—p. 600.
Simple Test for Acetone in Urine. I. M. Rabinowitch.—p. 602.
Ménière's Disease, with Some Observations on Its Treatment by Histamine. A. A. Campbell.—p. 603.
Venereal Disease: Hidden Hazard in Industry. L. P. Ereaux.—p. 606.
Salicylate Therapy in Rheumatic Fever.—Keith and Ross say that during the winter and early summer of 1944 an epidemic of streptococcal infection was prevalent among naval personnel. Cases of rheumatic fever appeared in the wake of this epidemic. Between February and the end of July 121 cases were admitted to the hospital with definite rheumatic fever. Of the 103 cases in the salicylate study, 70 were treated with a daily dose of 10 to 13.3 Gm. (150 to 200 grains) of sodium salicylate or acetylsalicylic acid. The drug was started on admission to the hospital and was given in five daily doses.

Each dose was accompanied with an equal quantity of sodium bicarbonate. In the control group of 33 cases 0 to 2 Gm. of salicylates was given daily. The salicylates were usually kept up for two to four weeks after the sedimentation rate was normal. Plasma salicylate levels were determined on a limited group. Oral administration of 13.3 Gm. (200 grains) of sodium salicylate with an equal quantity of sodium bicarbonate produced an average blood level of 31 mg. per hundred cubic centimeters. Ten Gm. (150 grains) of sodium salicylate with sodium bicarbonate produced a blood level averaging 27 mg. per hundred cubic centimeters. Such levels are sufficient to control joint symptoms, keep the temperature down and reduce the pulse rate. The sedimentation rate returned to normal in an average of four weeks. The incidence of heart disease was approximately the same in the high salicylate group as in the low salicylate group. Ten per cent of the rheumatic patients who entered the hospital with normal hearts developed rheumatic heart disease. Nausea, vomiting and tinnitus are much more common early in the administration of salicylates than after the patient has been receiving the drug for several days. These symptoms are not usually sufficient cause for stopping treatment. There was no evidence of kidney damage in this series.

Prevention of Acute Rheumatic Fever.—Fullerton says that in the city of New York in 1938 there were 1,105 reported deaths from rheumatic fever and rheumatic heart disease, whereas from six other common childhood diseases, namely whooping cough, diphtheria, measles, scarlet fever, cerebrospinal fever and infantile paralysis, there were only 247 deaths reported. There were five times as many deaths from rheumatic fever as from a combination of the six common childhood diseases. With the advent of the sulfonamides a practical method for the prevention of hemolytic streptococcal infections presented itself. Numerous investigators have administered since 1936 daily doses of sulfanilamide and latterly sulfadiazine to patients who had rheumatic fever. In the eight year period 815 rheumatic patients have been given this therapy, and only 8, or less than 1 per cent, have developed rheumatic fever, while the incidence among control groups ranged from 10 to 35 per cent. The value of this prophylactic measure has received tremendous impetus by its adoption and wholesale use in the U. S. Navy. In the latter part of the winter of 1943, 250,000 men were placed on daily doses of 0.5 Gm. of sulfadiazine twice daily, while another quarter of a million men were used as controls. During this period hospitalization for severe respiratory diseases was reduced 80 to 90 per cent, streptococcal infections were reduced 85 per cent and the incidence of acute rheumatic fever dropped so that for every 14 cases in the control group there was only 1 case in the treated group. The greatest hope in the prevention lies in the adequate and prolonged prophylactic use of salicylates during a rheumatic attack, to be followed immediately by prolonged prophylactic use of sulfadiazine.

Penicillin in Ludwig's Angina.—Bean and MacKenzie have treated Ludwig's angina with penicillin since 1944. At all times they have a tracheotomy set available, so that, if no improvement was noted in the first twenty-four hours, or if the progress of the disease warrants it, they are prepared to carry out surgical drainage without delay. Early surgery has not been necessary in the cases treated so far. Penicillin will control the infection in the early stages of Ludwig's angina in a high percentage of cases and will greatly reduce the number requiring early surgery.

Journal-Lancet, Minneapolis

65:211-234 (June) 1945

- Symposium on Obstetrics: Introduction. R. E. Leigh.—p. 211.
Placenta Previa. E. M. Ransom.—p. 212.
Abruptio Placentae. B. Urean.—p. 215.
Diagnosis and Treatment of Ectopic Pregnancy. W. A. Liebeler.—p. 218.
Treatment of Deafness, Ear Noises and Dizziness by Hypothermic Therapy. S. Quisling.—p. 219.
Low Back Pain in Army Specialized Training Program. L. J. Stark.—p. 223.
Spurious Fitness by Endurance Test. H. R. McPhee and P. V. Wells.—p. 226.
Ringworm of Scalp: Tinea Capitis. F. W. Lynch.—p. 228.

Journal of Nervous and Mental Diseases, New York

101:515-640 (June) 1945

- Neurologic Complications Following Use of Typhoid Vaccine. W. G. Peacher and R. C. L. Robertson.—p. 515.
Physicochemical Mechanisms in Experimental Epilepsy. V. H. Cicardo.—p. 527.
Treatment of Epileptic Patients with a Combination of 3-Methyl 5,5 Phenylethyl-Hydantoin and Phenobarbital: Preliminary Report. A. E. Loscalzo.—p. 537.
Psychopathic Behavior with Latent Epilepsy. N. Q. Brill and E. F. Walker.—p. 545.
Delayed Favorable Effects in Psychotherapy. J. C. Yaskin.—p. 550.
Nightmares of Suffocation. N. Fodor.—p. 557.
Functional Symptoms as First Evidence of Pancreatic Disease. N. K. Rickles.—p. 566.
Cephalin-Cholesterol Flocculation Test in Catatonic and Other Schizophrenics. H. de Jong and J. Harold St. John.—p. 572.
Tubercle Bacilli in Spinal Fluid of Dementia Precoc. E. Loewenstein.—p. 576.
Observations of Multiple Joint Pains in the Extremities at 38,000 feet. E. V. Bridge, F. M. Henry and J. H. Lawrence.—p. 583.
"Vibration Sense" as Differential Diagnostic Sign in Doubtful Cases of Parkinson Syndrome. A. Gordon.—p. 589.

Journal of Pediatrics, St. Louis

26:509-598 (June) 1945

- *Congenital Alkalosis with Diarrhea. J. L. Gamble, Kathleen R. Fahey, Janet Appleton and Elsie MacLachlan.—p. 509.
*Congenital Alkalosis with Diarrhea. D. C. Darrow.—p. 519.
Persisting Liver Damage Following Catarrhal Jaundice. G. W. Salmon and Ellen E. Richman.—p. 533.
Hospital Morbidity and Mortality of Infantile Eczema: Report of 100 Consecutive Hospitalized Cases of Infantile Eczema Without Deaths. S. Epstein.—p. 541.
Serum in Prophylaxis of Contacts and Treatment of Whooping Cough. J. H. Lapin.—p. 555.
Psychiatric Evaluation of Hyperkinetic Child. W. F. Schneider.—p. 559.
Simple Device for Timing Precordial Murmurs. M. M. Maliner.—p. 570.
Mechanical Suffocation During Infancy: Comment on Its Relation to Total Problem of Sudden Death. P. V. Woolley Jr.—p. 572.
Treatment of Rheumatic Fever with Penicillin. L. A. Rantz, W. W. Spink, P. Boisvert and H. Coggeshall.—p. 576.
Penicillin Treatment of Oral Inflammations in Childhood. M. B. Marks.—p. 582.
Acute Poliomyelitis and Acute Infectious Lymphocytosis: Their Apparent Simultaneous Occurrence in Summer Camp. J. S. Beloff and K. M. Gang.—p. 586.

Congenital Alkalosis with Diarrhea.—Severe diarrhea causes wastage of all the gastrointestinal secretions. The secretions which enter the intestine contain more of sodium than of chloride, and their total volume is several times larger than the volume of gastric juice. Diarrheal stools contain a larger quantity of sodium than of chloride. Diarrhea would not be expected to cause recession of chloride in the plasma with resulting alkalosis. Actually, in severe diarrheal disease, unless vomiting is a prominent feature, reaction change in extracellular fluid has been found to be in the direction of acidosis. Gamble and his associates report the case of an infant who disobeyed these simple and apparently axiomatic rules for diarrheal disease. He was 14 months of age when he entered the hospital. His affliction was a voluminous watery diarrhea which began directly after birth and had steadily continued. There was no evidence of impairment of gastric function. A large intake of milk supplemented by various other suitable articles of food was accepted without vomiting. Measurements of plasma chloride revealed persistently low values. The bicarbonate concentration was greatly extended beyond its normal value, and plasma p_{H} was increased. Observations on this infant indicate, but do not identify, an intrinsic defect in the control of electrolyte distribution in the body fluids.

Congenital Alkalosis with Diarrhea.—Darrow reports a case which is almost identical with that described by Gamble. The patient showed intractable watery diarrhea from birth to the age of 2 years 11 months. The stools were acid, contained considerable amounts of sodium, of chloride and at times of potassium. The alkaline urine contained no chloride, little sodium and variable amounts of potassium. Stool chloride was always greater than stool sodium and stool water greater than urine water. Absorption of nitrogen, fat, carbohydrate, phosphorus and calcium was essentially normal. The boy grew slowly and was subject to frequent exacerbations of the diarrhea accompanied by signs and symptoms of dehydration. The blood serum showed extreme alkalosis. Occasionally, serum potassium was low but usually was normal. Usually no signs of tetany

were present, but tetanic convulsions occurred once and carpopedal spasm occasionally. Metabolic data show that as chloride is lost more rapidly than sodium, extracellular sodium is transferred into intracellular fluids and approximately equivalent amounts of potassium are released from the cells and excreted. Similarly, when dehydration is treated with sodium chloride and potassium chloride, insufficient sodium is retained to account for the expansion of extracellular chloride but retention of potassium accounts for the release of sufficient sodium from cells to replace the deficit of extracellular sodium and to explain the changes in concentration of extracellular electrolytes. Darrow shows that the only striking difference between his observations and those of Gamble are the increased volume of stools which Gamble found when sodium chloride was added to the food. It is probable that Gamble's patient suffered at all times from a variable degree of potassium deficit. It seems likely that correction of severe alkalosis by administration of sodium chloride cannot be entirely successful as long as a deficit of potassium persists. Such a hypothesis may account for the difference in reaction of the 2 cases to treatment with sodium chloride.

Journal of Pharmacology & Exper. Therap., Baltimore

83:235-306 (April) 1945

- Mode of Action of Three New Diuretics: Melamine, Adenine and Formoguanamine. W. L. Lipschitz and E. Stokey.—p. 235.
- Studies on Shock Induced by Hemorrhage: XI. Method for Accurate Control of Blood Pressure. P. D. Lamson and W. E. DeTurk.—p. 250.
- Comparative Pharmacologic Action of Some Phenyl-, Cyclohexyl- and Cyclopentyl- Alkylamines. A. M. Lands, J. R. Lewis and V. Loraine Nash.—p. 253.
- Effect of Hepatotoxic Alkaloids on Prothrombin Time of Rats. C. L. Rose, R. D. Fink, P. N. Harris and K. K. Chen.—p. 265.
- *Thiouracil Levels in Serum and Urine. K. E. Paschkis, A. Cantarow, A. E. Rakoff and E. K. Tillson.—p. 270.
- Metabolism, Toxicity and Manner of Action of Gold Compounds in Treatment of Arthritis: VII. Effect of Various Gold Compounds on Oxygen Consumption of Rat Tissues. W. D. Block and Elizabeth L. Knapp.—p. 275.
- Renal Clearance of Sulfamerazine, Sulfadiazine, Sulfathiazole and Sulfapyridine in Man. J. G. Reinhold, H. F. Flippin, A. H. Domm, J. J. Zimmerman and L. Schwartz.—p. 279.
- Studies on Antimalarial Drugs: Distribution of Atabrine in Tissues of Fowl and Rabbit. Frances K. Oldham and F. E. Kelsey.—p. 288.
- Studies on Pain: Effects of Analgesic Agents on Sensations Other than Pain. A. Wikler, Helen Goodell and H. G. Wolff.—p. 294.

Thiouracil Levels in Serum and Urine.—Paschkis and his co-workers studied the concentration of thiouracil in the blood and excretion in the urine following its administration in therapeutic doses to human subjects. They found a modification of Chesley's procedure for determination of thiourea more satisfactory for thiouracil than methods previously described. When administered orally, thiouracil is absorbed rapidly and is excreted in the urine rapidly. Absorption from the rectum is relatively poor and apparently inadequate for therapeutic purposes. Thiouracil is present in the erythrocytes and plasma in approximately the same concentration. It can be removed from the serum by dialysis and is therefore either in a free state or only loosely bound to protein. A more constant level is maintained when small quantities are given at frequent intervals during the day than when a single large dose is administered. Unless a large dose is given in the evening, the concentration falls during the night to practically imperceptible levels in the morning.

Kansas Medical Society Journal, Topeka

46:145-178 (May) 1945

- Cancer in Kansas. F. C. Beelman.—p. 145.
- Treatment for Sacroiliac Strain or Sprain, Torticollis and Lumbago. M. Shoyer.—p. 149.

46:181-216 (June) 1945

- Cesarean Section in Private Practice. F. J. Nash.—p. 181.
- Transfusion of Whole Blood. C. Wilson.—p. 186.

Kentucky Medical Journal, Bowling Green

43:119-150 (May) 1945

- Postwar Planning for Physicians. R. I. Lee.—p. 127.
- Venous Thrombosis. G. de Takats.—p. 130.
- Abdominal Symptoms Not Due to Abdominal Disease. W. H. Witt.—p. 137.
- Röntgen Therapy in Inflammatory and Allied Conditions. J. E. Singer.—p. 142.

Nebraska State Medical Journal, Lincoln

30:189-224 (June) 1945

- Role of Radiotherapy in Treatment of Malignant Neoplasms. H. B. Hunt.—p. 192.
- Experience with Beck Two Flap Low Transperitoneal Cesarean Section. C. F. Moon.—p. 197.
- Treatment of Hypertension with Potassium Thiocyanate. C. Frandsen.—p. 199.
- Urinary Disturbances in the Aged. T. D. Boler.—p. 202.
- Acute Urinary Extravasation: Urologic Emergency. L. W. Lee, E. Davis and G. D. Shoup.—p. 204.
- Convulsions in Infancy and Childhood. G. C. O'Neil.—p. 207.
- Mass X-Ray Survey for Pulmonary Tuberculosis in Nebraska. L. E. Kling.—p. 211.

30:225-264 (July) 1945

- Place of Radioactive Substances in Treatment of Disease. R. W. Fouts.—p. 230.
- X-Ray Treatment of Inflammations and Acute Infections. F. L. Simonds.—p. 233.
- Congenital Microcolon Associated with Multiple Small Intestine Stenoses and Atresias. H. A. McConahay.—p. 237.

Northwest Medicine, Seattle

44:171-200 (June) 1945

- Tuberculosis Control in State of Washington. C. Northrup.—p. 174.
- Phlebography and Treatment of Venous Thrombosis. F. M. Anderson and R. H. Patterson.—p. 178.
- Chest Pain and Heart Disease. T. H. Duerfeldt.—p. 187.

44:201-232 (July) 1945

- Problem of Vitamin A Requirement of Man. J. V. Straumfjord.—p. 204.
- New Anticonvulsant in Treatment of Epilepsy: 3-Methyl 5,5-Phenyl-aethylhydantoin (Hydantal): Preliminary Report. N. W. Clein.—p. 210.
- Aspects of Nasal Cosmetic Surgery. C. Firestone.—p. 213.
- Acute Pelvic Pain. G. Kunz Jr.—p. 216.
- Medical Aspects of Search and Rescue Proceedings. F. L. Fletcher.—p. 220.
- *Rubella Cataract: Congenital Cataract and Other Defects Following German Measles During Pregnancy of Mother. A. F. M. DeRoeth and P. B. Greene.—p. 222.

Rubella Cataract.—DeRoeth and Greene report 2 cases of congenital cataract in infants. In addition, 1 baby had microcephaly and microphthalmos and the other had a congenital heart lesion. The authors think that the cataracts should be extracted. The Australian committee pointed out that avian and mammalian embryonic tissues are more susceptible to infection than the adult tissues. This is the basis of Goodpasture's virus culture technic. The human embryo possibly possesses the same susceptibility to infection. The virus of German measles may pass the chorionic villi more readily than bacteria before a placental barrier has been developed. The Australian committee made the following suggestions: Expose all young girls to rubella; try to isolate the virus and prepare a vaccine against the disease; study the effect of convalescent serum to be used on the pregnant mother in case she had no rubella before. The question comes up whether therapeutic abortion is indicated if the disease is contracted in the first three months of pregnancy.

Public Health Reports, Washington, D. C.

60:693-724 (June 22) 1945

- Physical Impairments of Members of Low Income Farm Families, 11,490 Persons in 2,477 Farm Security Administration Borrower Families, 1940: IV. Defective Tonsils and Adenoids. Mary Gover and J. B. Yaukey.—p. 693.
- *Studies on Susceptibility to Poliomyelitis. C. Armstrong and D. J. Davis.—p. 710.

60:725-752 (June 29) 1945

- Immunization of White Rats Against Infections with Pasteurella Tularensis. C. L. Larson.—p. 725.
- Studies of Acute Diarrheal Diseases: XVI. Outbreak of Salmonella Typhi Murium Infection Among Newborn Premature Infants. J. Watt and Elizabeth Carlton.—p. 734.

Susceptibility to Poliomyelitis.—Persons exposed to poliomyelitis may react quite differently, some developing constitutional symptoms with paralysis while others harbor the virus but show no symptoms. The cause for this difference is unknown, as is the actual reason for the common occurrence of virus neutralizing antibodies in serums collected from the general population. Approximately 70 per cent of poliomyelitis patients develop antibodies slowly, if at all, following a recognizable attack. If this is an inherited characteristic, it is pos-

sible that the fathers and mothers of patients with the paralytic form of poliomyelitis might be found to show a higher incidence of non-neutralizing serums than would persons of corresponding age from the general population. The serums for a determination of this point were collected from 42 mothers and 27 fathers of hospitalized paralytic poliomyelitis patients in North Carolina during the 1944 outbreak. When tested with the Lansing strain of poliomyelitis virus in white mice, the serums from 39 mothers neutralized the virus, 3 partially neutralized it and none were negative. Among serums from 27 fathers, 23 neutralized it, 3 partially neutralized it and 1 was negative. These results give no indication that paralytic poliomyelitis is more apt to occur among those whose parents do not readily produce circulating antibodies against the virus.

Radiology, Syracuse, N. Y.

44:531-592 (June) 1945

- Antral Gastritis: Roentgenologic and Gastroscopic Findings. W. W. Vaughan.—p. 531.
- Roentgen Appearance of Lobar and Segmental Collapse of Lung: II. Normal Chest as It Pertains to Collapse. L. L. Robbins and C. H. Hale.—p. 543.
- Fibrous Dysplasia of Skull: Probable Explanation for Leontiasis Ossea. D. G. Pugh.—p. 548.
- Radiation Therapy of Carcinoma of Thyroid. R. Rosh and L. Raider.—p. 556.
- Further Problems in X-Ray Protection: I. Radiation Hazards in Photo-fluorography. M. I. Birnkrant and P. S. Henshaw.—p. 565.
- Further Problems in X-Ray Protection: II. Irradiation Injury and the Tolerance Dose. P. S. Henshaw.—p. 569.
- Further Problems in X-Ray Protection: III. Protective Measures in Photofluorography. M. I. Birnkrant and P. S. Henshaw.—p. 581.
- Teratoid Tumor of Chest: Case Report. D. S. Dana, I. H. Lockwood, H. A. Neibling and J. W. Walker.—p. 585.
- Neurofibroma of the Cauda Equina: Report of Case. R. Pomeranz.—p. 588.

Surgery, Gynecology and Obstetrics, Chicago

81:1-112 (July) 1945

- Primary Resection (Close Anastomosis) of Rectal Ampulla for Malignancy with Preservation of Sphincteric Function, Together with Further Account of Primary Resection of Colon and Rectosigmoid and Note on Excision of Hepatic Metastases. O. H. Wangenstein.—p. 1.
- Metabolic Alterations Following Thermal Burns: II. Changes in Plasma Volume and Plasma Protein in Convalescent Phase. W. E. Abbott, J. W. Hirschfeld and F. L. Meyer.—p. 25.
- *Routine Use of Protein Digest Intravenously Following Major Surgical Procedures. H. H. Davis.—p. 31.
- *Disarticulation of Innominate Bone for Malignant Tumors of Pelvic Parietes and Upper Thigh. E. D. Sugarbaker and L. V. Ackerman.—p. 36.
- Parachute Fractures. P. A. Knepper.—p. 53.
- Wounds of Rectum. C. N. Morgan.—p. 56.
- Concussion of Spinal Cord: Experimental Study and Critique of Use of Term. R. A. Groat, W. A. Rambach Jr. and W. F. Windle.—p. 63.
- Immediate Skin Grafting Following Injuries. M. K. King.—p. 75.
- *Dicumarol Therapy in Postoperative Thrombophlebitis and Phlebothrombosis. W. H. Parsons.—p. 79.
- Effect of Dihydrochysterol on Certain Toxemias of Late Pregnancy. W. Shute and E. Shute.—p. 83.
- "Early Rising" Following Major Surgical Operations. P. W. Schafer and L. R. Dragstedt.—p. 93.

Use of Protein Digest Intravenously Following Surgical Procedures.—Davis reviews observations on the use of protein digest (amigen) in 203 surgical patients. At two hospitals amigen was given intravenously to most of the patients until they were able to take a soft diet by mouth. In another hospital Davis used no amigen but glucose and isotonic solution of sodium chloride as a control. In four groups of patients the favorable results of protein digest intravenously were especially noticeable, because a longer time elapsed before the patients were able to resume eating. They were given 1 liter of amigen twice a day until it was safe to begin mouth feedings. They maintained their strength and well being, and they did not develop edema. There was no need to give food by mouth until peritonitis had subsided and until bowel resections had quite healed. These four groups of patients included those with peritonitis, intestinal obstruction and gastric resections and those who had undergone colostomy mainly for carcinoma. The author advocates the intravenous use of protein digest following major surgery as a routine measure until such time as patients are able to take adequate nourishment by mouth.

Disarticulation of the Innominate Bone for Malignant Tumors.—Sugarbaker and Ackerman state that 99 patients have been operated on for tumors of bone or soft parts in the region of the upper femur or pelvis. Although an overall mortality of 28 per cent exists, that of the first forty year period was 56 per cent but during the past ten years it has dropped to 14 per cent. This drop has been largely due to improvement in the treatment of shock, which has been the primary complication of this operation. Of 45 patients surviving operation and followed for from one to five or more years, 21 remained clinically well and 24 died. The deformity, although considerable, is borne gratefully by these patients, who have become convinced that there remains no hope of cure. Far too few patients have received the benefit of radical operation. Advantages of wide resection have not been sufficiently exploited, particularly as regards partial or incomplete removal of the innominate bone when that bone itself represents the site of the tumor. With more adequate control of the mortality, patients will be selected less on the basis of age and more on the basis of the pathology of the tumor. Consideration of these factors will favorably influence the prognosis in sarcomas of the upper thigh and pelvic parietes.

Dicumarol in Postoperative Thrombophlebitis and Phlebothrombosis.—In probably 95 per cent of all cases postoperative pulmonary emboli which terminate fatally have their origin in thrombosis of the veins of the lower extremities. Both the incidence and the causation of postoperative thrombi are still matters of debate, but wherever the condition has been properly studied the incidence has always been found to be much higher than is believed. The incidence of postoperative thrombosis is related to the proportion of necropsies secured. For the past five years Parsons has been able to obtain necropsies in about 75 per cent of all fatal cases in his surgical service, and he has observed a relatively high incidence of pulmonary embolism and of antecedent venous thrombosis. The complication is most often observed after surgery, particularly on the pelvic organs. A nonpelvic origin is not infrequent, and surgery does not necessarily precede the development of pulmonary embolism. Thrombosis should be borne in mind as a possibility following any operative procedure and should be immediately presumed to exist if several days after operation there is unexpected or unexplained low grade fever or if there is tenderness in the calf of the leg on dorsiflexion of the foot (Homans' sign). When thrombosis or thrombophlebitis has been diagnosed or is seriously suspected, exploration of the femoral vein is a wise precaution. If pulmonary infarction has developed, it should be carried out without delay. With this treatment should be combined the administration of dicumarol, which is also a prophylactic measure; but dicumarol should never be employed without adequate control in the form of daily estimations of the plasma prothrombin time. If the plasma prothrombin time becomes dangerously lengthened, the administration of a vitamin K preparation or transfusion is indicated.

Virginia Medical Monthly, Richmond

72:235-272 (June) 1945

- Symposium on Nutrition. W. H. Higgins.—p. 238.
- Introduction. J. B. Youmans.—p. 238.
- Nutrition in Relation to Medicine. W. B. Porter.—p. 239.
- Nutrition in Relation to Surgery. E. I. Evans.—p. 240.
- Effects and Manifestations of Nutritional Deficiencies in Obstetrics and Pediatrics. L. E. Sutton.—p. 242.
- Nutrition in Preventive and Industrial Medicine. I. C. Riggins.—p. 247.
- Conclusion. J. B. Youmans.—p. 250.
- Suppressive Treatment of Malaria During Combat Operations. S. G. Page and W. H. Riser.—p. 255.
- Penicillin Therapy in Otitis Externa. M. B. Raiford.—p. 258.
- Myositis in Chronic Rheumatism and Chronic Cough. F. Hopkins.—p. 261.

72:276-316 (July) 1945

- Pneumococcal Meningitis. H. Walker and G. W. James III.—p. 276.
- Sulfonamide Pack in Postoperative Otorhinologic Wounds. P. N. Pas-tore.—p. 285.
- Indications for Oophorectomy. R. H. Hoge.—p. 286.
- Amebiasis and Amebic Dysentery. J. H. Scherer.—p. 289.
- Nutrition Clinic. Marguerite L. Pettee.—p. 291.
- Service of Pharmacist. K. L. Kaufman, R. H. Fiske and T. D. Rowe.—p. 293.
- Oculoglandular Tularemia: Report of Case. D. Guerry III.—p. 295.
- Chaplaincy at Medical College of Virginia. G. Ossman.—p. 297.
- Public Health Nurse and Private Physician. C. Viola Hahn.—p. 299.
- Theory and Practice in Preparation of Nurses. A. W. Hurd.—p. 303.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

26:1-66 (Feb.) 1945

- Change from Benign to Malignant in Chemically Induced Warts in Mice. J. C. Mottram.—p. 1.
- Inhibition of Carcinogenic Action Produced by Weekly Carcinogenic Hydrocarbon on Highly Active Carcinogenic Hydrocarbon. A. Lacasagne, Buñ-Hoi and G. Rudali.—p. 5.
- Significance of Basophil Changes in Pituitary Accompanying Various Forms of Thyroxine Deficiency. W. E. Griesbach and H. D. Purves.—p. 13.
- Studies on Experimental Goiter: VI. Thyroid Adenomas in Rats on Brassica Seed Diet. W. E. Griesbach, T. H. Kennedy and H. D. Purves.—p. 18.
- Reaction of Products of Initial Stages of Peptic Proteolysis of Human and Horse Serum Albumin with Antiserums to Original Albumins. A. Kleczkowski.—p. 24.
- Conversion of Nonprecipitating Inhibiting Protein Complexes into Forms Again Precipitable by Antiserums to Original Proteins. A. Kleczkowski.—p. 33.
- Specific Precipitation of One Protein by Antiserum to Another. A. Kleczkowski.—p. 41.
- Levulose Tolerance in Acute Hepatitis. C. H. Gray.—p. 49.
- Treatment of Experimental Gas Gangrene Due to Clostridium Welchii with Penicillin and Antitoxin. F. P. O. Nagler.—p. 57.
- Acceleration by Means of Prolonged Mechanical Irritation of Carcinogenesis in Skin of Mice Painted with 1:2:5:6-Dibenzanthracene. J. F. Riley and F. W. Pettigrew.—p. 63.

British Journal of Ophthalmology, London

29:277-332 (June) 1945

- Iridochisis with Multiple Rupture of Stromal Threads. A. Loewenstein and J. Foster.—p. 277.
- Periarteritis Nodosa Affecting Eye. R. Sampson.—p. 282.
- Observations on Effect of Riboflavin on Oral Lesion and Dysphagia, and of Riboflavin and Brewers' Yeast on Dark Adaptation in Case of So-Called Plummer-Vinson Syndrome. H. Pollak.—p. 288.
- Sjögrens Syndrome, Especially Its Nonocular Features. F. P. Weber.—p. 299.
- Treatment of Septic Ulcer of Cornea by Local Applications of Penicillin. F. Juler and M. Y. Young.—p. 312.

British Journal of Radiology, London

18:133-166 (May) 1945

- Radiology of War Injuries: Part III. War Wounds of Chest. D. B. McGrigor and E. Samuel.—p. 133.
- Dosage Distribution in Treatment of Ringworm by X-Rays. S. B. Osborn, Diana R. Tavener and F. T. Farmer.—p. 145.
- Condenser Ionization Chambers for Measurement of X-Rays in Body Cavities: Physical Problems in Their Design. F. T. Farmer.—p. 148.
- Disk Lesions in Relation to Pain. A. C. Mooney.—p. 153.
- Effect of Variations in the Dose Rate of Gamma Radiation on Cell Degeneration in the Frog Tadpole. A. Glucksmann, K. Tansley and C. W. Wilson.—p. 158.

British Medical Journal, London

1:619-652 (May 5) 1945

- Applications of Surgical Lessons of War to Civil Practice. W. H. Ogilvie.—p. 619.
- *Outbreak of Hepatitis in Diabetic Clinic. H. Droller.—p. 623.
- Transmission of Infection During Withdrawal of Blood. K. Mendelssohn and L. J. Witts.—p. 625.
- Iron Deficiency Anemia in Northwest Indian Soldiers. M. Hynes, M. Ishaq and T. L. Morris.—p. 626.
- "Eczema Autolytica." W. Smith.—p. 628.
- Segmental Movement of Pupil. I. S. McGregor.—p. 629.

Hepatitis in a Diabetic Clinic.—Droller says that from January 1943 to January 1945 63 diabetic patients attending the clinic at the Royal Hospital in Sheffield were diagnosed as suffering from hepatitis. This clinic supervises approximately 450 patients. Anorexia, loss of weight and vomiting were the symptoms most frequently encountered in the patients with hepatitis. Tingling of fingers and neck rigidity may have been early neurologic manifestations. Owing to the sudden disturbance of the carbohydrate metabolism, immediate complications occurred in a number of patients. Insulin had to be increased and the diets altered. Another complication was acute atrophy of the liver, which caused the death of 2 of the patients. Delayed complications occurred in 8 patients, of whom 2 died of cirrhosis; the remaining 6 are in various stages of ill health. The epidemic occurred at a time of a high incidence of the

disease among the general population. It appears that both contact and syringe transmission occurred. There was queuing for weighing and bleeding. As the blood was collected in syringes which were not boiled, it is possible that small amounts of infective material might contaminate the needles. In view of the possibility that infected syringes were the cause of the epidemic, all routine blood letting was stopped after Sept. 1, 1944 and bleeding was done only in special cases. Since then, although the technic of blood drawing has not been changed, only 1 case has appeared after an interval of ninety-three days. With the abolition of routine blood letting, overcrowding has diminished and with it droplet infection.

1:653-688 (May 12) 1945

- War Neuroses After Psychologic Trauma. R. D. Gillespie.—p. 653.
- *Gas Gangrene, with Special Reference to Vascularization of Muscles. R. W. Power.—p. 656.
- Arsenical Encephalopathy: Note on Condition, Stressing Value of Postural Treatment, with Case Records. G. A. Ransome, J. C. S. Paterson and L. M. Gupta.—p. 659.
- Prolapse of Rectum in Women. H. Chapple.—p. 661.
- Tuberculosis of Lower Lobe. R. C. Cohen.—p. 662.
- Prevention of Migraine by Oral Administration of Carbachol: Analysis of 12 Cases. A. K. James.—p. 663.
- Rheumatism: Postgraduate Instruction. A. Abrahams.—p. 671.

Gas Gangrene and Vascularization of Muscles.—Power reports 20 cases of gangrene encountered among 6,000 wounded in a general hospital during the fighting in Normandy. Adequate notes are available on 16 of these 20 cases. Three factors are essential for the establishment of gas gangrene—the presence of pathogenic clostridia, an adequate mass of ischemic or necrotic muscle and delayed or faulty surgery. Ischemic or necrotic muscle is essential for the establishment of gas gangrene. If a small piece of shell passes through the thigh causing no arterial damage, gas gangrene will not develop; natural resources can cope with such damage. If a similar piece of shell passing through the thigh should strike an artery, muscles are rendered ischemic and form a suitable pabulum for micro-organisms. If clostridia are present in such a wound, gas gangrene will develop. Of the 16 cases under review, 14 occurred in the lower limb and 2 in the upper. This is accounted for by the more abundant arterial anastomosis of the arm and by the relative vulnerability of the leg owing to its greater mass. The author differentiates between massive gas gangrene resulting from damage to the main artery of a limb and localized gas gangrene resulting from laceration of muscular branches. There were two deaths, both resulting from gas gangrene following injury to the popliteal artery. The distribution of clostridia is widespread. They can be grown almost without fail from the battle dress. There still exists a fallacious belief that direct contact with the soil is the chief causal factor of gas gangrene. The Cutler and Sandusky findings contradict this view. The clothing is the important vehicle, especially the battle dress, which is largely composed of wool. In the desert warfare 30 per cent of all wounds contained the organism of gas gangrene, yet only 1 per cent of those so contaminated developed anaerobic myositis. In only 0.33 per cent of all wounds has arterial damage been inflicted and a sufficient amount of ischemic muscle produced on which the clostridia can multiply. The elimination of gas gangrene can come only from early and efficient surgery.

1:689-722 (May 19) 1945

- *"Primary Atypical Pneumonia": An Epidemic Associated with Malaria. J. Fleming, E. W. Lindbeck and I. H. Evans.—p. 689.
- Incidence of Puerperal and Lactational Mastitis in an Industrial Town of Some 43,000 Inhabitants. A. A. Fulton.—p. 693.
- *Further Case of Paranoid Psychosis Successfully Treated by Adrenalectomy. C. Allen and L. R. Broster.—p. 696.
- *Hypertrichosis with Mental Changes: Effect of Adrenalectomy. R. Greene, A. S. Paterson and G. C. L. Pile.—p. 698.
- Treatment of Impetigo: Virtues of Calamine Liniment and Minor Drawbacks of Local Sulfonamide Therapy. Mary S. Smith and E. C. Jones.—p. 699.
- Child's Acquisition of Speech. Mary D. Sheridan.—p. 707.

Primary Atypical Pneumonia Associated with Malaria.—Fleming and his associates report 112 cases treated in a military hospital in Italy. In most of the cases the onset was acute, and a high intermittent fever was present for an average of eight days. There was considerable debility, requiring from four to six weeks of convalescence, so that the majority of

these men were off duty for about eight weeks. Many of the patients were admitted during a period when there was a heavy incidence of malaria. About one third had the typical lung lesion in association with malaria. The presence of malaria had no influence on the period of pyrexia. The authors think that if they had not been aware of the prevalence of atypical pneumonia many of the malaria infected cases might, from physical signs alone, have been assumed to be merely associated bronchitis of malarial origin. Several cases presented an acute onset resembling malaria, and the diagnosis became clear only as the illness progressed unaffected by quinine therapy. There was no evidence that the association of atypical pneumonia and malaria was other than fortuitous. Sulfathiazole and sulapyridine had no effect on the course of the illness, but the authors ascribe the absence of complications to their routine use. There was no indication that they had any toxic effect on the polymorphonuclear leukocytes, and when used in combination with full doses of quinine, in the malaria cases, no adverse effect was noted.

Adrenalectomy in Paranoid Psychosis.—Allen and Broster say that a special study of adrenal disease has been made at Charing Cross Hospital since Broster performed an adrenalectomy on a patient with sexual precocity over fifteen years ago. It was noted that women with virilism were often abnormal and sometimes psychotic. Broster's publication on this problem attracted the attention of Gillespie, who discovered a woman with a severe schizophrenic paranoid psychosis combined with adrenogenital virilism. Following the removal of one adrenal she made a complete recovery. The authors present a similar case in which adrenalectomy was performed. This is the sixth case in which adrenogenital virilism has been combined with a psychosis. The response to adrenalectomy was similar to the one in the previous case.

Adrenalectomy in Hypertrichosis with Mental Changes.—Greene and his associates report the case of a woman aged 25 who had hypertrichosis associated with mental changes, which gradually resolved after adrenalectomy. The psychologic changes preceded the external physical changes. When first seen she was drifting into a tense hypochondriacal state. The removal of most of the causes of her anxiety did not bring about her recovery. Only after operation was she set on the road to recovery.

Indian Medical Gazette, Calcutta

80:61-120 (Feb.) 1945

- Subacute Constrictive Pericarditis. R. Viswanathan.—p. 61.
- Diagnosis of Early Gastric Cancer (with Review of 60 Cases). D. J. Jussawalla.—p. 63.
- Nutritional Diarrhea. W. R. Aykroyd and C. Gopalan.—p. 68.
- Fulminating or Malignant Cerebrospinal Fever. I. Jit and S. D. Chugh.—p. 74.
- Amebiasis of Anus and Perineum, with Report of Case. R. M. S. McConaghey.—p. 79.
- Physical and Immunologic Reactions of RBC "Juice" and Stroma. S. D. S. Greval and A. B. R. Chowdhury.—p. 81.
- Experimental Studies in Rat Bite Fever. B. C. Basu and S. Sen.—p. 82.
- *Amebiasis and Blackwater Fever. C. McGuire.—p. 84.
- Oriental Sore in Nizam's Dominions: Epidemiologic Factors. M. Farooq and M. Qutubuddin.—p. 85.
- Voges-Proskauer Test with Leifson's Reagent. G. Panja and A. N. Bose.—p. 89.
- Distribution of Typhoid VI Agglutinins in Normal Serums, with Special Reference to Their Diagnostic Value in Typhoid. D. W. Soman.—p. 90.

Amebiasis and Blackwater Fever.—McGuire has observed during the past twelve years 33 cases of blackwater fever in Bengal Dooars, where malaria is hyperendemic. The history of these cases was always the same, namely repeated attacks of malaria which were controlled by quinine, then suddenly the development of blackwater fever during one of these attacks after taking quinine. A popular view among the medical practitioners in the Dooars is that the causation of blackwater fever has something to do with the liver. Some workers recognize a preblackwater stage, which is characterized by an enlarged and tender liver. Krishnan and Pai concluded that liver damage and altered metabolism are factors in the etiology of the disease. McGuire was struck by the observation that among his 33 cases of blackwater fever there were 21, or 63.6 per cent, with the clinical signs of amebiasis. A tender and thickened cecum and ascending colon and an enlarged and tender liver

were present. Microscopic examinations of the stools showed *Endameba histolytica*. Though clinical signs of amebiasis were present in 9 cases, no protozoa were found. It is possible that the amebiasis in his series is a coincidence, but in view of the work of Krishnan and Pai it is also possible that amebic hepatitis may in some cases cause liver damage of a type that will help in the production of the biochemical blood changes reported by them, especially when these patients have a superimposed malarial infection. Quinine may cause further deterioration and act as an immediate excitant. The exciting cause in all the author's cases of blackwater fever was quinine. In no case did blackwater fever recur after atabrine.

Journal of Laryngology and Otology, London

59:309-346 (Sept.) 1944

- Ascertainment of Deafness in Infancy and Early Childhood. I. R. Ewing and A. W. G. Ewing.—p. 309.
- Ménière's Disease: Results of Treatment of 60 Cases by Alcohol Injection Through Footplate of Stapes. A. J. Wright.—p. 334.

Jour. of Obst. & Gynaec. of Brit. Empire, Manchester

52:97-216 (April) 1945

- *Hypoplasia of Uterus and Spasmodic Dysmenorrhea. T. N. A. Jeffcoate and Sylvia Lerer.—p. 97.
- Uncomplicated Primigravid Breech: Technic Used in 60 Cases. D. S. Greig.—p. 122.
- *Relation of Vitamin B₁ Deficiency to Pregnancy Toxemias: Study of 371 Cases of Beriberi Complicating Pregnancy. G. King and L. T. Ride.—p. 130.
- Studies in X-Ray Pelvimetry: Evaluation of Pelvic Radiography, with Plea for Simplicity. O. S. Heyns.—p. 148.
- Effect of Testosterone Propionate in 2 Cases of Ovarian Carcinoma. J. Wyatt.—p. 174.
- Note of Case of Exstrophy of Bladder with Procidencia. S. G. Clayton.—p. 177.
- Extragenital Chorionepithelioma: Report of Case with Chorionepithelioma of Breast Occurring During Course of Pregnancy. L. Resnick.—p. 180.
- Case of Coexisting Tuberculosis and Cancer of Uterus. G. H. Smith.—p. 189.
- Dysgerminoma of the Ovary in Child of Five Years with Acute Torsion of Pedicle. F. A. McNally.—p. 193.

Hypoplasia of Uterus and Spasmodic Dysmenorrhea.

According to Jeffcoate and Lerer dysmenorrhea is related to contracture of the uterus. The difference between painful and painless contractions lies in their character rather than their strength. The pattern of uterine motility causing pain during menstruation is unknown, but the view which supposes incoordination of different areas of the uterus, or disturbed polarity of the uterus, has still to be disproved. The theory which supposes uterine hypoplasia as the cause of the abnormal uterine contractions, and the evidence on which it is based, are critically examined in the light of what is known about the development of the uterus. An analysis of the histories of 829 patients suffering from spasmodic dysmenorrhea shows that not more than 27 patients had signs of uterine hypoplasia. The age at the menarche was usually within normal limits. Scanty and infrequent menstruation was exceptional, and most women had a regular cycle. Endometrial studies showed that the histologic phase generally agreed with the time of the menstrual cycle. Painful menstruation is usually ovular in type. Of 457 patients, some had minor malformations of the uterus; but these faults are not accepted as an indication of hypoplasia. The existence of an interval between the menarche and the onset of dysmenorrhea in a large percentage of cases is confirmed. This in itself is evidence against the hypoplasia theory. An analysis of a second series of 86 patients, all of whom had a hypoplastic or atrophic uterus, shows that of the 28 women who were menstruating only 1 had dysmenorrhea of an incapacitating degree. The value of estrogen therapy in spasmodic dysmenorrhea is open to question. If it gives relief, it does not necessarily do so by overcoming hypoplasia. The evidence is insufficient to prove or disprove the hypoplasia theory of dysmenorrhea, and it will remain so as long as the pathology of uterine hypoplasia is in doubt.

Vitamin B₁ Deficiency and Pregnancy Toxemias.—King and Ride say that there was a striking increase in the incidence of beriberi in Hong Kong during the years 1939, 1940 and 1941. An almost parallel increase was observed in pregnancy toxemias,

particularly eclampsia and preeclampsia, the toxemia rate rising from 3.45 per cent during the preceding three years to 7.82 per cent during the three years under review. Some correlation seems possible. It was found that of 371 pregnant women with beriberi 252 had pregnancy toxemia. The diagnosis of beriberi and pregnancy toxemia was supported by clinical and laboratory findings. Significantly high readings of the pyruvic acid content of the blood were obtained in the great majority of cases. In women with toxemia and beriberi the prognosis was considerably more grave than in cases of toxemia without frank signs of beriberi. This was particularly seen in the eclampsia cases, in which a mortality rate of 38.8 per cent was found in 36 cases complicated by beriberi as opposed to 11.6 per cent in 43 uncomplicated cases. It is suggested that the primary factor responsible for the heavy increase in pregnancy toxemia during the years under review was vitamin B₁ deficiency. Prophylaxis and/or active treatment by the exhibition of adequate amounts of vitamin B₁, whether in the form of a vitamin rich diet or as thiamine medication, is suggested as perhaps the most important single measure in dealing with pregnancy toxemia.

Lancet, London

1:551-582 (May 5) 1945

- Wounds of Knee Joint. B. H. Burns, R. H. Young and G. M. Muller.—p. 551.
Order and Disorder in Large Intestine. T. L. Hardy.—p. 553.
Effect of Penicillin on Cultures in Liquid and Solid Mediums. R. Knox.—p. 559.
*Tracheotomy in Bulbar Poliomyelitis. A. Nelson-Jones and R. H. H. Williams.—p. 561.
DDT Treatment of Mange (Scabies) in Rabbits. B. G. T. Elmes.—p. 563.
The Returned Prisoner of War. G. C. Pether.—p. 571.

1:583-614 (May 12) 1945

- Revival of Early Wound Closure: Two Stage Operation as Applied in Italy. H. C. Edwards.—p. 583.
Policy of Delayed Suture: Role of Forward Surgeon. F. A. R. Stammers.—p. 586.
Treatment of Battle Wounds: Two Stage Operation. W. M. Capper.—p. 587.
Wounds of Soft Tissue: Two Stage Treatment. J. J. M. Brown.—p. 588.
Administration of Penicillin by Mouth. N. G. Heatley.—p. 590.
Time of Occurrence of Secondary Familial Cases of Infective Hepatitis. A. M. McFarlan.—p. 592.

Tracheotomy in Bulbar Poliomyelitis.—Nelson-Jones and Williams report the history of a man aged 33 in whom tracheotomy was done to overcome the difficulties of bulbar symptoms. They stress that tracheotomy should not be postponed until the patient is about to die. The treatment should include aspiration by a rubber catheter passed from time to time into the tracheotomy tube and connected with an electric sucker; penicillin and sulfathiazole during the first week; vocal rest; and a nutritious fluid diet with adequate vitamins A and B₁ given by Ryle tube, which can be tolerated for weeks with occasional removal for cleaning.

Practitioner, London

154:337-400 (June) 1945

- Prevention of Disease in Infants. J. M. Mackintosh.—p. 154.
Common Feeding Difficulties in Breast Fed Infants. K. H. Tallerman.—p. 343.
Infantile Diarrhea. W. Gunn.—p. 348.
Infantile Eczema. R. T. Brain.—p. 358.
Pneumonia in Infancy. E. F. Dott.—p. 363.
Clinical Signs of Nutritional Deficiencies. H. M. Sinclair.—p. 371.
Cervical Discharge. M. M. White.—p. 380.

Archives des Maladies Professionnelles, Paris

6:1-60 (Nos. 1 & 2) 1944

- Visceral Repercussions of Acute Carbon Monoxide Poisoning. M. Loeper, A. Varay, J. Cottet and J. Leveillé.—p. 1.
Blood Changes in Course of Chronic Sulfocarbonism. L. Binet and F. Bourlière.—p. 12.
*Is Mononucleosis a Form of Myelotoxicosis Caused by Benzene? P. Mazel, D. Picard and J. Bourret.—p. 18.
Pathology of Work and Workers in Corporation of Building and Public Works. G. Saint-Martin and R. Le Baron.—p. 23.

Mononucleosis from Benzene.—Mazel and his co-workers report the case of a youth aged 19 who had worked in a shoe factory and for the last year worked with a paste containing benzene. He complained of growing lassitude and mild dyspnea on exertion. Examination of the blood revealed severe leuko-

cytosis, at first a pure lymphocytosis and later a lymphomonocytosis with a plasmocytic tendency, giving a picture comparable to that of lymphomonocytic angina. This syndrome is accompanied by a mild impairment of the erythrocytic series with passage of few erythroblasts into the blood. The authors were unable to determine the duration of the process, as the discovery was accidental. It disappeared several weeks after the patient was removed from contact with benzene. Similar cases have been observed and reports published by other observers. These cases of mononucleosis induced by benzene have in common accidental discovery and cure after the patient is removed from the toxic atmosphere and given rest, and the hematologic syndrome is characterized by a mononucleosis.

Gynécologie et Obstétrique, Paris

44:1-60 (Nos. 1, 2 & 3) 1944

- *One Hundred and Fifty Infiltrations of Lumbar Sympathetic in Course of Labor: Physiologic and Clinical Deductions. H. Pigeaud.—p. 1.
Evolution of Human Telencephalon During First Four Months of Embryonal Life. Madeleine Friant.—p. 7.

Infiltration of Lumbar Sympathetic During Childbirth.

—Pigeaud employed infiltration of the lumbar sympathetic in the course of labor in 150 deliveries. Each infiltration consisted of 40 cc. of a 1:1,000 solution of nupercaine. For some time he made bilateral infiltrations at the level of the third to fourth lumbar vertebrae; then he made unilateral infiltrations on the left side from the second to the third lumbar vertebrae; with this method a painful zone sometimes persisted on the right side. With the bilateral infiltration complete analgesia is almost always obtained. Infiltration of the lumbar sympathetic of a woman in labor during the period of dilatation effects immediately or after several minutes the disappearance of pain for from one to two hours, or for seventy-five minutes on the average. Clinical observations and the graphic registrations showed that labor followed its usual course during the analgesic period. All infants were born alive. Infiltration of the lumbar sympathetic suppresses the severe pains which accompany the end of the period of dilatation.

Acta Dermato-Venereologica, Stockholm

25:111-206 (Sept.) 1944

- Influence of External Factors on Cutaneous Manifestations in Syphilis. C. E. Sonck.—p. 111.
Etiology of Induratio Penis Plastica. N. Melzer.—p. 121.
Experimental Sensitization of Skin with 2,4-Dinitrochlorobenzene. T. E. Olin.—p. 135.
*Rubber Products as Widespread Cause of Eczema: Report of 80 Cases. P. Bonnevie and P. V. Marcussen.—p. 163.
*Percutaneous Photosensitization Due to Handling of Parsnips. Vera Starck.—p. 179.
Total Congenital Hereditary Alopecia. H. Lundbäck.—p. 189.

Rubber Products as Cause of Eczema.—A systematic investigation at the department of dermatology of the Finsen Institute, Copenhagen, showed that eczema caused by rubber is of rather widespread occurrence and not confined to certain occupations as previously supposed. Of the 80 reported cases, representing about 2 per cent of the cases of hypersensitivity eczema, only 25 were occupational. Rubber footwear and articles of clothing were the dominating causes of the eczema (about 74 per cent). Eruptions on the feet caused by rubber were in most cases difficult to differentiate from mycotic eczema. Etiologically the rubber itself was subordinate in relation to the accelerator agents used in manufacture. Of these mercaptobenzothiazole was the most frequent cause of sensitization. The prophylaxis of rubber eczema is sometimes difficult on account of the widespread use of rubber, its indispensability in certain garments and the penetration of the accelerator agents. Cold-vulcanized rubber can often be tolerated in cases in which there is only accelerator hypersensitivity.

Photosensitization Due to Handling of Parsnips.—Starck reports that in May 1943 a woman aged 43 applied to the dermatologic department complaining of an unusual looking skin change on her hands. She had been working in a cold storage room and for three weeks had been preparing parsnips. The change was most pronounced on her left hand. It involved only the dorsal side of the hands and a sharp, oblique demar-

cation line crossed the forearm, just where the sleeve ended. In the course of the following days 12 other patients arrived with similar symptoms. All 13 patients had been working in a factory which produced dried vegetables. Investigations revealed that the dermatitis was due to sensitization to light caused by work with parsnips. The author demonstrated in experiments that the parsnip root contains some substance liable to render the skin sensitive to a certain kind of radiation, that the sensitivity will remain for some time after the exposure to the plant and that the juice of the parsnip has not in itself any perceptible irritating influence on the skin.

Acta Medica Scandinavica, Stockholm

118:261-430 (Sept. 30) 1945. Partial Index

- Studies on Influence of Magnetism on the Oxygen Absorption in Man. Karen Marie Hansen.—p. 261.
- *Eosinophil Granuloma of Bone or Schüller-Christian's Disease. J. Engelbreth-Holm, G. Teitum and Erna Christensen.—p. 292.
- Electrocardiographic Observations During Intravenous Injection of Acetylcholine. A. Stigaard.—p. 313.
- *Acoustic Theory of Percussion. E. Bárány.—p. 345.
- Accumulated Cases of Chronic Benzene Poisoning in Rubber Industry. K. J. Helmer.—p. 354.
- Rapidly Recurrent Gastric Hemorrhage. J. Bok.—p. 376.
- Electrocardiogram in Aortic Insufficiency, with Special Regard to Development of Left Bundle Branch Block Electrocardiogram. H. Rasmussen.—p. 385.
- *Pathogenesis of Pernicious Tapeworm Anemia: Preliminary Report. G. Tötterman.—p. 422.

Eosinophilic Granuloma of Bone.—Engelbreth-Holm and his associates review the early descriptions of eosinophilic granuloma of bone. This is a painful tumor of a bone, most often of a membranous bone, which usually develops in a child or young person. Roentgenography reveals a solitary, sharply defined defect in the bone, sometimes with swelling of the corresponding soft part. Microscopic study discloses a granuloma made up of reticular cells with numerous eosinophilic leukocytes, sometimes also giant cells of the osteoclastic type. The blood and sternal bone marrow may show a moderate eosinophilia. The differential diagnosis must take into account osteomyelitis, Ewing's sarcoma, bone cyst and Schüller Christian's disease. The authors observed eosinophilic granuloma of bone in 5 children between 2 and 9 years of age. They observed transitions from solitary eosinophilic granuloma through cases with several osseous foci to a generalized case with innumerable foci in the bone system together with diabetes insipidus, disturbance of growth and roentgenographic changes in the lungs. In several cases in which the disease commenced as a solitary granuloma, continued observation has revealed additional foci, so that in the cases observed by the authors the number of foci increased with the length of the observation period. Morphologically transitions were demonstrated from the lipid-free eosinophilic granuloma through granuloma with beginning lipid phagocytosis with Touton cells to entirely xanthomatous tissue. The authors conclude that the concept of eosinophilic granuloma can no longer be regarded as a nosologic entity but has to be considered a not altogether infrequent clinical monosymptomatic form of Schüller Christian's disease that often heals without becoming generalized.

Acoustic Theory of Percussion.—Bárány discusses the relations between the acoustic properties of the thorax, the Fourier spectrum of the percussion impact and the loudness spectrum of the resulting percussion sound. The importance of matching the Fourier spectrum of the impact to the acoustics of the thorax is pointed out.

Pathogenesis of Pernicious Tapeworm Anemia.—Tötterman found that an alcohol extract of tapeworm, when administered parenterally to 2 persons who had suffered from pernicious tapeworm anemia, resulted in an impairment of the blood picture, which subsided again spontaneously when the preparation was discontinued. Some local and general symptoms were observed. A control person did not show any changes; 2 others showed a passing decline in the blood picture, which improved, however, even though the preparation was continued. According to the author, these results support the conception that an increased sensitivity to tapeworm poison assumes an important role in the pathogenesis of tapeworm anemia.

Nordisk Medicin, Stockholm

23:1345-1384 (July 21) 1944

Hospitalstidende

Serum Iron as Diagnostic Aid in Acute Hepatitis (continued report). S. Bjerre and N. R. Christoffersen.—p. 1345.

Hygiea

Mammary Tuberculosis: Review Together with 6 Personal Cases. I. R. Sandberg.—p. 1357.

23:1385-1420 (July 28) 1944

Humoral Control of Gastric Phase of Gastric Secretion. B. Uvnäs.—p. 1385.

Contribution to History of Chordotomy. H. Fabritius.—p. 1389.

Apparatus for Suction Drainage. W. Mascher.—p. 1390.

Hospitalstidende

Case of Plummer-Vinson Syndrome with Four Successive Carcinomas Treated with Riboflavin with Favorable Effect on Leukopenia. A. Videbæk.—p. 1391.

Hygiea

*Disk Degeneration in Lumbar Region. E. Severin.—p. 1393.

Disk Degeneration in Lumbar Region.—Frequent disturbances of more or less pronounced sciatic type which occur in cases with disk degeneration in the lumbar region can be explained partly by disk protrusion, partly by the occurrence of disk prolapse. Severin's study of 210 cases in 1939-1941 showed that, while clinical examination can give useful indications, definite diagnosis depended on roentgen examination. There were disturbances mainly attributable to degeneration of an intravertebral disk in 221 patients treated in the Orthopedic Clinic, Stockholm, in 1943.

23:1463-1506 (Aug. 11) 1944

Hospitalstidende

Calcium Deficiency and Renal Calculi Due to Spinach. B. Schmidt-Nielsen and K. Schmidt-Nielsen.—p. 1463.

Treatment of Hyperthyreosis with Thiouracil. G. Alsted and H. Lindholm.—p. 1467.

*Investigations on Blood Content of Pneumococcus Antibodies in Patients with Exudative Pleurisy with Reference to Etiology of Disease. F. Heintzelmann.—p. 1470.

Hygiea

Neurologic and Rhythmic-Biologic Points of View in Ulcer Problem. H. Laurell.—p. 1473.

Blood Content of Pneumococcus Antibodies in Exudative Pleurisy.—Heintzelmann's studies confirm the view that in almost all cases pleurisy is due to a tuberculous infection. Examination for pneumococcus antibodies may occasionally be useful, but the results must be evaluated with reservation and the positive outcome does not exempt from the usual control for tuberculosis. Patients with pleurisy after pneumonia should be carefully watched for possible later development of tuberculosis.

23:1623-1656 (Sept. 8) 1944

Hospitalstidende

*Sulfathiazole Filling and Primary Suture in Resection of Mastoid Process. M. Kjær and K. Kettel.—p. 1623.

Local Sulfonamide Treatment of Wound Cavity After Resection of Mastoid Process with Special Regard to Scarlatinal Mastoiditis. I. Falbe-Hansen.—p. 1625.

Micromethod for Estimation of Plasma Bicarbonate with van Slyke's Little Air Analyzer. S. E. Mikaelson.—p. 1629.

Hygiea

Electroencephalography in Epilepsy. T. Sison Frey.—p. 1647.

Sulfathiazole Filling and Primary Suture in Mastoidectomy.—In treating 80 patients Kjær and Kettel used sulfathiazole filling 101 times in the cavity with primary suture. Secondary operations became necessary in 3 cases. The average healing time and wound secretion time was less than eight days. In scarlet fever mastoiditis the healing time averaged 19.9 days. Follow-up of 72 patients with 92 ears operated on from five to thirty months after the intervention showed normal hearing in 85 per cent; in 8 of the 10 cases with impaired hearing the loss of hearing was due to long continued processes in the middle ear prior to operation. The plastic result was excellent. The method is recommended in all simple cases of resection of the mastoid process.

Book Notices

Surgery of Modern Warfare. Edited by Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London. Sub-Editor for Medicine, C. Allan Birch, M.D., M.R.C.P., D.C.H., Senior Physician, North Middlesex County Hospital, London. Volumes I and II. Third edition. Cloth. Price, \$20. Pp. 506; 507-1108, with 1,128 illustrations. Baltimore: William Wood & Company, 1944.

With the close of the war in Europe it is again possible to assess the lessons learned from a large experience with trauma resulting from combat. The advances of surgery and its related sciences in the past twenty-five years have resulted in a gratifying decrease in mortality and morbidity. Much of this is due to such successful attempts at prophylaxis as exemplified by the practical elimination of tetanus. A more accurate evaluation of shock and the elimination of much serious infection with modern chemotherapy has resulted in great conservation of life and limb. The surgeon with the armed forces is grateful for adequate equipment, blood and its substitutes, sulfonamide drugs, and penicillin in the treatment of war injuries. He appreciates especially the training and experience of modern surgical teaching, which is basically responsible for the improvement in treatment of combat casualties.

The lessons taught to surgeons by their experiences with modern warfare are well described by the author and his collaborators. The organization of this edition is much the same as that of the last. The work is in two volumes and consists of twenty-one sections representing the opinions of various contributors. Characteristically the writing is clear, precise and literate. Instructions are presented in a typically positive manner which can form an accurate guide to treatment.

Volume I contains a brief summary of warfare instruments and their destructive effects. Such bizarre injuries as result from air and water explosions are effectively described. The nature of wounds and types of contamination are scientifically exposed. It is indicative of the rapid advances made that sulfonamide drugs receive much more attention than in the previous edition, but only a few words can be allotted to penicillin, although its importance is recognized. Other sections in the first volume are concerned with shock, burns, anesthesia and the management of various types of wounds. Some deviations from American practices may be pointed out without undue criticism. The petrolatum gauze pressure dressing treatment of wounds is not emphasized; the tannic acid method, interdicted by United States authorities, is cautiously advocated. The value of whole blood and the need for large amounts of plasma in the presence of shock are definitely suggested.

Wound excision and primary closure are not endorsed as enthusiastically as they were in previous publications. Instead accurate débridement and the so-called surgical toilet are preferred. The local use of sulfanilamide is recommended more wholeheartedly than in former discussions. It should be noted that the use of sulfanilamide locally is not a substitute for adequate surgery. This section has become a particularly valuable summary of knowledge gained by wide and long experience.

Volume II contains sections dealing with regional types of wounds and their treatment. In general, measures to be taken and complications and sequelae to be expected are well outlined. The management of thoracic and abdominal wounds, especially the treatment of hemothorax, is adequately delineated. The section on amputations contains many valuable suggestions which will profit the reader. The doctor with the armed forces has learned to be conservative in his early treatment of war wounds and, conversely, to be more radical in the treatment of the aftermaths and sequelae. Skin grafting, reamputation, and radical orthopedic and plastic procedures are now feasible. The peculiar properties of modern warfare have made wounds of the extremities a serious problem. In this respect peripheral nerve injuries have attracted a great deal of attention. The subject is well covered in this book with the exception of causalgia, which is a frequent and disabling complication. This should receive more attention, since there are now logical procedures to alleviate this distressing condition.

The illustrations cannot be passed over lightly. Their accumulation is a credit to the industry of the author. Many of the anatomic drawings are aptly refreshing. The form and organization of the text are such as to make for ready reference.

The Management of Obstetric Difficulties. By Paul Titus, M.D., Obstetrician and Gynecologist to the St. Margaret Memorial Hospital, Pittsburgh, Pa. Third edition. Cloth. Price, \$10. Pp. 1,000, with 434 illustrations. St. Louis: C. V. Mosby Company, 1945.

This edition, which is slightly larger than the previous one, contains a number of additions and changes, particularly in the chapters on sterility, antepartum care and management of pregnancy, labor and the puerperium. The chapters on x-rays, pelvimetry, toxemia, intravenous infusions and blood transfusions have been rewritten, and sections on caudal anesthesia and penicillin have been added. The reviewer still is of the opinion that the section on sterility (almost eighty pages) does not properly belong in a textbook dealing with "obstetric difficulties." In this section figure 46, which illustrates artificial insemination, shows the tip of the syringe at or beyond the internal os. Injection of semen this high up may lead to trouble. Many other illustrations deal with gynecologic subjects not obstetric ones such as condylomas, coagulation of Skene's glands and Bartholin gland abscess and its treatment by coagulation and surgical removal. Likewise the nine pages describing and illustrating cauterization and conization of the cervix are outside the sphere of obstetric difficulties. Figure 386 (p. 856), "Prolapsus uteri," is the same as figure 69 (p. 147). One other criticism is that the bibliography has not been brought down to date. Titus frequently refers to both Williams and De Lee. In most instances the 1930 edition of the Williams textbook is listed, but this may be because the 1930 edition was the last one Williams himself wrote. However, the reference always given for the De Lee quotations is the 1933 one, although two editions have appeared since then. In spite of these minor shortcomings this book should be in the library of every physician who practices obstetrics. It is well written, is beautifully and abundantly illustrated and is based on an extensive experience as an obstetrician and gynecologist, investigator, teacher and secretary of the American Board of Obstetrics and Gynecology. This edition should be even more popular than the previous ones.

A Symposium on Mammary Tumors in Mice. Publication of the American Association for the Advancement of Science No. 22. By Members of the Staff of the National Cancer Institute, National Institute of Health, United States Public Health Service. Edited by Forest Ray Moulton. Cloth. Price, \$4. Pp. 223, with illustrations. Washington, D. C.: The Association, 1945.

The symposium is made up of twelve articles by active workers in the National Cancer Institute. The introduction, general and historical, is by M. B. Shimkin. The cytology and histogenesis of mammary cancer in mice are covered by A. J. Dalton and T. B. Dunn, the vascular supply by G. H. Algere and H. W. Chalkley, the genetics by W. E. Heston, the hormonal relations by B. M. Shimkin, the milk factor by H. B. Andervont, the effect of diet and other agencies by H. P. Morris, the chemistry by J. P. Greenstein and experimental treatment by H. M. Dyer. In the final article M. B. Shimkin summarizes the main outcome of these articles, with discussion of its bearings on cancer of the human breast. Critical analysis cannot be made of each article. The articles describe well the current state of knowledge and understanding of cancer of the breast in mice. The deep complexity of the problems of cancer is brought out impressively by the detailed consideration of a particular cancer in a particular animal. A high standard is set for symposiums on other types of cancer. The book will be of value to investigators as well as to all who wish to keep in touch with the progress of cancer research.

Bibliography of Industrial Hygiene 1900-1943: A Selected List. Compiled by Ellen F. Bellingham, J. J. Bloomfield, Senior Sanitary Engineer, and Waldemar C. Dreesen, Surgeon, United States Public Health Service. From the Industrial Hygiene Division, Bureau of State Services, Federal Security Agency, U. S. Public Health Service, Public Health Bulletin No. 249. Prepared by direction of the Surgeon General. Paper. Price, 20 cents. Pp. 95. Washington, D. C.: Supt. of Doc., Government Printing Office, 1945.

This helpful list of references covers the period 1900-1943. Although not entirely up to date, it does present conveniently the dependable sources of information about all important aspects of industrial health. Collections of textbooks and reference works should be checked against this list as a test of completeness and adequacy.

Medical Care of Merchant Seamen: A Handbook of Ship and Aircraft Sanitation and Emergency Medical Aid. By W. L. Wheeler Jr., M.D., Medical Director, Grace Line, Inc. Fabrlioid. Price, \$2. Pp. 212, with 25 illustrations. New York: Cornell Maritime Press, 1945.

The purpose of this handy little book of pocket size is "to give the officers and men on shipboard a basic knowledge of what they could do for themselves and their fellow seamen where medical care was not available." It does more than this in that there is included much general information, compactly presented. General sanitation, sanitary measures and disinfection are briefly but well covered, and simple means are described to combat existing conditions to be found on board ship. Many blank forms are presented, with careful complete instructions as to their preparation and disposition. A brief but clear description of elementary anatomy is given, easily understood by the layman.

Under the heading Medicine Chest there is a rather full compendium of medicinal substances with instructions for their use, more or less generally including the cause of the disease or condition and the effect of the remedy. Contagious and communicable diseases are described briefly but sufficiently in language which the layman and inexperienced can understand. Injuries and fractures are discussed, but the handling of fractures is too brief and casual. Certain common conditions which may be expected to appear at any time are well covered, with suggested treatment and "what to do." Childbirth at sea, precautions to be taken on tankers, resuscitation and care of survivors are given considerable attention. A whole chapter of twenty-two pages is given to conditions associated with aviation, completely presented in a general narrative and informative manner as to not only the adverse symptoms and psychologic effects but also the physical factors encountered. Quarantine for ships and aircraft is discussed at length, as is also the method of sending proper messages to obtain pratique. There is a description of spaces devoted to the use of the medical service and their arrangement and equipment, all of which is illustrated by drawings and conveys much detail as a guide to construction of such spaces.

Radio messages seeking medical advice by ships at sea are outlined carefully, that proper diagnosis and treatment may be obtained from a distance, especial emphasis being placed on the details of the patient and his illness. A list of marine hospitals and Public Health Service relief stations is given where aid or treatment may be obtained. A glossary of words and terms used in medical practice is appended to the text. There is also a good index. The book is well printed and bound.

A great deal of simple, understandable detail is contained in the text, and one concludes that the author gave a great deal of thought and review in preparation of it. An unusual amount of information is compressed into a small volume. It is a good general brief treatise on medical and surgical subjects. The style is readable. With this book as a guide the layman or inexperienced officer or sailor at sea can afford the sick or injured person fairly satisfactory care and attention. The book is therefore recommended to those going to sea without medical personnel on board.

Camping for Crippled Children. Editor: Harry H. Howett, Director, Social Research, The National Society for Crippled Children and Adults, Incorporated. By Committee on Camping: Ernest B. Marx, chairman, Gertrude Whitehead, Joseph E. Gemblis, and Harry H. Howett, secretary. Cloth. Pp. 120, with illustrations. Elyria, Ohio: National Society for Crippled Children and Adults, Inc., 1945.

Physicians, teachers of crippled children and social service directors who are interested in the problem of the crippled child have long recognized a need for a source book of information dealing with the problem of summer camps for crippled children. In every community which is large enough to have well developed plans of care for crippled children, the importance of summer camps has been recognized and many camps for crippled children have been established throughout America. Some of these camps have been well planned and well equipped with adequately trained personnel and intelligently outlined programs. In some instances, however, the organizations which were attempting to establish these camps have lacked leadership which was prepared by training or experience to develop a program which would offer the maximum in benefits to the children

whom they wished to serve. This book should be of great help to all those who are interested in the welfare of crippled children. The author of the book has had long experience as a director of social research toward more complete solutions of the varied problems faced by clubs, societies and other organized groups whose efforts are dedicated to the care of crippled children and adults. He has been assisted in preparation of the book by specialists who have collaborated by writing chapters dealing with the various phases of the camping problem for crippled children. This book affords an outline which can be followed in either setting up new camps or in improving those which are already in existence.

Hayfever Plants: Their Appearance, Distribution, Time of Flowering, and Their Role in Hayfever, with Special Reference to North America. By Roger P. Wodehouse, Ph.D., Associate Director of Research in Allergy, Lederle Laboratories, Pearl River, N. Y. Volume XV, a New Series of Plant Science Books, edited by Frans Verdoorn. Cloth. Price, \$4.75. Pp. 245, with 73 illustrations. Waltham, Mass.: Chronica Botanica Company; New York: G. E. Stechert & Co., 1945.

The approach is that of a botanist who is well versed in the field, laboratory and clinical aspects of pollen allergy. Dr. Wodehouse has already published a book and several papers on pollen morphology, in which science he has for years been the leading American authority. In the first fifteen pages he attempts to set forth all the essential facts of botany and pollen aerobiology as related to inhalant allergy. A perusal of these pages leaves one with the impression that wartime restrictions on book paper have caused serious contraction of this part of the original manuscript. A large share of the book is devoted to the classification, description, geographic distribution and clinical evaluation of hay fever plants and pollens. Verbal descriptions are supplemented by many original drawings of plants and flowers and of more than fifty highly magnified pollen grains. The last chapter is devoted to a careful condensation of all published pollen surveys by regions and localities. The format is excellent, and the material is well organized throughout and adequately indexed. Among other helpful features is the glossary. The book will be welcomed by all allergists and should be available for reference to every one concerned in any way with the subject of pollen allergy.

The Governing of Men: General Principles and Recommendations Based on Experience at a Japanese Relocation Camp. By Alexander H. Leighton, Lt. Comdr., Medical Corps, U.S.N.R. Published in Cooperation with the American Council, Institute of Pacific Relations, Inc. Cloth. Price, \$3.75. Pp. 404, with illustrations. Princeton, New Jersey: Princeton University Press; London: Oxford University Press, 1945.

The author is a psychiatrist and social scientist who was assigned to the Japanese Relocation Center at Poston, Ariz. He there observed the social and psychologic problems of both the evacuees and the administration. His description of the events that led up to the strike and the dynamic forces involved in the explosion makes fascinating reading. The factual data are followed by a considerable description of the lessons learned from this experiment. The reader can understand the simple conclusions and advice laid down in the second part of the book after he has gone through a period of pessimism at the stupidity demonstrated by the administration in the data of part I. Certainly this book should be studied carefully by persons who are involved in the government of occupied territories. Any one who is concerned with the administration of groups would profit by this work. This applies to medical officers, industrial psychologists and psychiatrists, teachers and every one who takes his responsibility in a democracy seriously.

Industrial Toxicology. By Donald Hunter, M.D., F.R.C.P., Physician to the London Hospital. Being the Croonian Lectures for 1942 of the Royal College of Physicians of London. Cloth. Price, 10s. Pp. 80. New York & London: Oxford University Press, 1944.

These essays are the Croonian Lectures for 1942 and not, as the title suggests, a complete discussion of industrial toxicology. The entire series is an expression of an extensive personal experience and wide reading. The three metals lead, mercury and arsenic are discussed in the first lecture. Other lectures describe important aromatic compounds, chlorinated hydrocarbons and glycols.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

FACTORS WHICH PREDISPOSE TO HYPERTENSION

To the Editor:—What investigations can be conducted to diagnose early arterial hypertension? Of what value is the cold pressor test or the apnea test? Are there any physiologic reactions such as thermal instability, a white demographic reaction to light and heavy pressure, a negative or reverse oculocardiac reflex or a negative hippus that are suggestive of vasomotor instability or prehypertension? What hereditary factors predispose to hypertension, and how can these be assessed quantitatively? How can the important environmental tensions within a family containing one or more hypertensives be evaluated? M.D., Ontario.

ANSWER.—Forecasting the inevitable development of hypertensive disease is impossible prior to the appearance of the major phenomenon hypertension. The etiology of hypertensive disease may be divided into three groups: predisposing, provoking and perpetuating influences. The development of any disorder depends on the reaction of a vulnerable individual to provoking influences. It is impossible to anticipate just what protracted vasopressor stimulation an individual will be subjected to in the future. All that can be assessed is the probable relative importance of constitutional vulnerability as contrasted to multiple and variable provoking factors.

Of the several means of assessing the lability of the vasomotor mechanisms, the cold pressor test is probably the most useful of the clinically applicable procedures. The investigations of Hines and others have indicated a significant correlation between exaggerated response to vascular stimulation by cold and the subsequent development of hypertensive disease. However, one should repeat the test several times before drawing final conclusions. The type of response elicited should be consistent in each individual. Isolated observation should never be given much weight in clinical diagnosis. There are several other means of discovering circulatory instability, but they all suffer from one or more serious drawbacks. For example, it is quite possible to demonstrate exaggerated vasoconstriction induced by emotional stimulation. Anger, fear and annoyance all induce vascular hypertonia, which, if protracted, may lead to hypertensive disease. Exaggeration of such reaction is indicative of vasomotor instability. However, it is impossible to standardize emotional stimuli. The cold pressor test, on the other hand, is standardized as to the intensity and duration of stimulation by cold. As far as known there is no significant correlation between thermoinstability and increased vulnerability to hypertension. The typical migraine physique (Stieglitz, E. J.: *The Migraine Physique*, *Am. J. M. Sc.* 189:359 [March] 1935) is characterized by extraordinary thermostability, and yet these patients frequently develop hypertensive disease. Similarly, significant correlation has never been demonstrated between demographic reaction or the oculocardiac reflex and hypertension. It is sometimes useful to test the circulatory response to certain vasopressor stimuli other than cold or emotion, particularly when it is suspected that certain insults may be playing a provocative role in causing early variable hypertension. For example, it is well known that there exists great variation in individual susceptibility to tobacco smoke. Some individuals respond with a decided rise in their blood pressure following smoking, whereas others give little or no reaction.

The relative importance of environmental tensions within a family group cannot be evaluated with any precision. Their importance varies greatly, not only between individuals, but at different times in the same individual because of recent physical and emotional conditioning. For example, a family row occurring during the phase of premenstrual tension and irritability can be more upsetting than a similar row occurring at some other time. Fatigue, personal relationships, the depletions of minor infections, relaxation induced by alcohol, and the like can greatly affect vulnerability to emotional turmoil. Clinical judgment on the part of the physician is requisite for estimating the relative importance of the purely genetic factors of inheritance and the environmental factors associated with living in a tumultuous emotional environment. No tests can replace sound clinical sense or the judgment born of experience in diagnostic evaluation of all sorts.

INTRAVENOUS THERAPY OF BUERGER'S DISEASE

To the Editor:—What is the status of intravenous infusions of hypertonic (5 per cent) solution of sodium chloride in the treatment of thromboangiitis obliterans? Can any harm come from the prolonged use of such a solution in quantities of 300 cc. on alternate days for one to three months? Jacob Greenblatt, M.D., Stamford, Conn.

ANSWER.—Hypertonic solution of sodium chloride for the treatment of thromboangiitis obliterans (Buerger's disease), which involves both arteries and veins, has been used extensively in certain clinics. Koga's suggestion was based on the idea that the viscosity of the blood is increased in this disease and he advocated large doses of isotonic solution of sodium chloride or isotonic solution of three chlorides to lower viscosity. A group of New York observers use various concentrations of sodium chloride and sodium citrate. Some feel that the 5 per cent concentration of sodium chloride may produce localized thrombi in certain individuals and advocate a 3 per cent or even a 2 per cent concentration. The usual plan of administration is to give 300 cc. of 3 to 5 per cent solution of sodium chloride intravenously three times a week for three months and then gradually decrease the frequency of treatment until a total of nine months treatment has been given. In more advanced cases the intensive treatment three times a week is continued.

There is an increase in pulse amplitude immediately after the injection, but this is transient. Some reactions occur, although they may be minimized by careful preparation of solutions, glassware and tubing.

The question immediately arises why such patients, if they really need sodium, could not receive it orally either in solution or in tablets. Drinking a gallon of chilled isotonic solution of three chlorides or the ingestion of ten 1 Gm. keratin coated tablets of sodium chloride may give striking pain relief and improvement in the status of the peripheral vascular system. The type of patient who shows a high red cell count, a high hematocrit and other evidence of chronic plasma loss will undoubtedly benefit from such a procedure. Later on, when other measures, medical and possibly surgical, have been instituted the sodium chloride solution can be dropped and a liberal intake of water continued.

Aside from the irritation of the vein, the inconvenience and expense of the frequent intravenous injection and the possibility of systemic reaction, patients with a diseased cardiovascular apparatus may be overloaded with a hypertonic solution of this volume, since the 5 per cent concentration of sodium chloride has to attract a considerable amount of water from the tissues to become isotonic. Actually it represents roughly 1,500 cc. of isotonic solution of sodium chloride, the 1,200 cc. having to come from the tissues. The patient becomes very thirsty and replaces this with more water. Hypertension and cardiovascular-renal disease definitely contraindicate such treatment. While this temporary increase in blood volume, in oscillations and in blood flow may be of some benefit, the same effect can be more simply accomplished by the oral ingestion of salt solution or by mechanical means which are capable of filling and stretching the venocapillary bed, such as intermittent venous hyperemia.

LUPUS ERYTHEMATOSUS DISSEMINATUS AND PREGNANCY

To the Editor:—A white woman aged 25, a nullipara, developed an erythematous rash of the entire face during her second month of pregnancy. She had a normal delivery and an uneventful postpartum period except for a temperature of 102 F. the second day, with pyuria which cleared up in seventy-two hours on sulfadiazine 15 grains (1 Gm.) every four hours. There was a slight anemia; the white blood cell count was 12,000. The rash, which was considered toxic and expected to disappear after delivery, has persisted. On the twelfth day post partum there was arthralgia of the shoulders, wrists and fingers, an ascending temperature of 100 to 104 F., a sedimentation rate of 100 and a definite leukopenia, 1,500; the differential count was normal. The urine has pus cells and many red blood cells at times but not constantly. The patient was hospitalized seven weeks post partum. Agglutination tests and blood cultures were negative. The patient died eleven days following hospitalization. The diagnosis of lupus erythematosus disseminatus was made on admission. Penicillin and blood transfusions were tried without improvement in the patient's condition. How many cases are there on record of this disease beginning during pregnancy? Considering the fatality in this instance, did pregnancy mask the symptoms or hold the disease dormant until a sudden flare-up seven months after onset? Will the newborn baby be affected with the same or other ailments?

George H. Jantzen, M.D., Queens Village, N. Y.

ANSWER.—Lupus erythematosus disseminatus is a serious disease with a poor prognosis, especially in pregnancy. It is relatively rare and it is quite unusual to have it begin during pregnancy. Cases have been seen in which a severe exacerbation has occurred during pregnancy. The prognosis in regard to the child, in general, is good.

RIGHT AXIS DEVIATION IN ELECTROCARDIOGRAM

To the Editor:—What is the significance of a right axis deviation in the electrocardiogram of a young adult both as to a theoretically disturbed or arrested prenatal cardiac rotation and also as to its clinical evaluation in the presence of precordial pain referred to the left arm and neck on physical exertion? What are the prognosis, the best management and the most recently accepted life expectancy?

M.D., California.

ANSWER.—The term right axis deviation includes two separate phenomena: (1) a shift in the electrical axis to the right as a result of an altered position of the heart; (2) strain on the right side of the heart. Of course the possibility of a mirror image dextrocardia in which the P, QRS and T waves are inverted must be ruled out. Experience, particularly in the armed forces, has shown that right axis shift is quite common in young people and may be severe in degree without evidence of heart disease. Congenital heart disease may lead to a similar finding or to evidences of right heart strain. Rheumatic mitral stenosis is the commonest cause of right heart strain in a young adult. Bronchial asthma or kyphoscoliosis might also cause a right heart strain at this age. A record similar to that seen in right axis shift or in right heart strain may be produced in the limb leads in a healed anterior wall myocardial infarct. While the last mentioned condition could explain the electrocardiogram referred to and the pain, it is unlikely. Noncardiac causes for the pain should be excluded. The prognosis, management and life expectancy do not depend on the presence of right axis shift or right heart strain but on the conditions which cause them.

VOMITING OF PREGNANCY

To the Editor:—A woman aged 29, apparently in good health, became pregnant three years ago and aborted spontaneously at six weeks after pernicious vomiting of two weeks. Two months ago a pregnancy was started and at one month vomiting again started and, in spite of hospitalization and proper management, a therapeutic abortion was done after three weeks of vomiting. The questions now are How soon may she try again? and What can be done in the meantime, besides building up her general health, to decrease chances of a repetition? Would administration of ovogestron or vitamin B₆ as soon as a period is missed and before vomiting starts be of any value? If so, please state dosage.

M.D., Illinois.

ANSWER.—There is no known way of preventing hyperemesis gravidarum before pregnancy occurs except by making certain a woman's physical condition as perfect as it can be and by arousing in her every determination to use her will power to the utmost in an effort to control vomiting. In the case described, hypnosis should be highly successful. Pyridoxine hydrochloride, or vitamin B₆, may perhaps be of some value if administered before pregnancy even though there is no proof of this. This vitamin, as well as other forms of therapy including adrenal cortex, progesterone, sedatives and above all psychotherapy, should be begun a few days after a menstrual period is skipped. The dose of vitamin B₆ is 50 to 100 mg. given intravenously and repeated as necessary. The dose of adrenal cortex extract is 2 cc. given subcutaneously at daily intervals. If thiamine hydrochloride is used, between 50 and 100 mg. should be given daily. If progesterone is used, 5 or 10 mg. should be given intramuscularly daily. It does not matter when a patient like this conceives again. If she is in good physical condition she may try to become pregnant even as early as four months after the abortion.

MANAGEMENT OF COLITIS

To the Editor:—A patient has refractory ulcerative colitis which fails to respond to any and all treatment, including vaccine. He has had a good response in the past to the concentrated serum, but this seems to be no longer available. A number of pharmaceutical supply houses have informed me that they withdrew their serum because of lack of demand. Presumably the advent of the sulfonamides had much to do with this. However, this patient does not tolerate any of the sulfonamides. I understand that tyrothricin has been used empirically in retention enemas. What is the present status of serum? Is it on the market? What is known of the use of tyrothricin? Can anything be suggested that is not contained in the standard textbooks on the disease or in the current literature?

Frederick L. Sperry, M.D., Detroit.

ANSWER.—With the advent of the sulfonamides, the concentrated serum (antibody solution) came to be used less and less because these drugs were found to be of great help in the control of the active symptoms of the patient with ulcerative colitis. Unfortunately, they have not been useful in all cases of this type of colitis, and the serum continued to find its place for those who were sensitive to the sulfonamides. However, since the demand was small, its distribution was discontinued. Unless some more potent method of therapy becomes available, some of the pharmaceutical houses say that they will have it again for distribution after the war. The sulfonamides which have

been of the greatest help in this disease have been azosulfamide, succinylsulfathiazole and sulfathalidine. So far, clearcut evidence has not been presented as to the value of tyrothricin or any of the other antibiotics as therapeutic agents to be given by rectal instillation. Penicillin has been helpful in the control of the acute symptoms of this disease in some cases. Streptomycin is about to receive a trial.

Other measures of therapy are referred to in a monograph by J. Arnold Barger entitled "The Modern Management of Colitis" (Springfield, Ill., Charles C Thomas, 1943).

LOCAL INFECTION AND DRAINAGE OF CUTANEOUS LYMPHATICS

To the Editor:—I removed a lot of seborrheic warts from the back of a man aged 60, using electrodesiccation with local anesthesia. Some of the warts were as big as a nickel; there were about 20 of them; all were located on the upper back, some just above the midline of the back, horizontally. I covered them with a disinfectant lotion and protected against friction. The healing process was normal. Three weeks later the patient's lymph glands in the groin became swollen. He went first to an internist, who referred him to a surgeon. I did not know about this until the surgeon called me after having the patient under his care for two weeks. He stated that the swelling of the inguinal lymph glands was, in his opinion, caused by the removal of the seborrheic warts and by a possible infection therefrom. The warts had healed in the meantime except for a few which showed some little secretion but no pus. Is it possible that the removal of superficial seborrheic warts on the upper part of the back could cause a reaction such as the swelling of the inguinal glands three weeks after the removal of the warts?

Paul C. Rost, M.D., Los Angeles.

ANSWER.—The cutaneous lymphatics of the trunk are divided on each side of the body into two principal regions: a superior region drained by the axillary nodes and an inferior region from which the lymph is poured into the inguinal nodes and which includes the umbilicus. While most anatomists agree that the line of division between these two regions corresponds to an almost horizontal line, sloping somewhat behind and above, which passes anteriorly through the umbilicus and posteriorly through a point placed a little above the disk which separates the second and third lumbar vertebrae, variations in this level as high as the lateral margins of the tenth rib have been reported. The supraumbilical and infraumbilical regions do not communicate except by fine capillaries.

Although the query does not state the exact level on the back of the seborrheic warts, the fact that a little secretion was present at one of the operative sites might indicate a persistent low grade infection. In the absence of all other causes of inguinal adenitis it is possible that an inflammation of the superficial inguinal lymph glands could result from an infection in the subcutaneous tissue of the back below the level mentioned.

Reference:

Rouvière, H.: Anatomie des lymphatiques de l'homme, Masson et Cie, 1932; translated by M. J. Tobias, Ann Arbor, Mich., Edwards Brothers, Inc., 1938.

IMMUNIZATION OF INFANT TO YELLOW FEVER AND DIPHTHERIA

To the Editor:—An 8 month old baby is joining his father in a yellow fever zone. Is immunization advisable? Is there any risk of hepatitis due to the immunization? What is the dosage? How soon after passive immunization against diphtheria should active immunization be performed?

Captain, M. C., A. U. S.

ANSWER.—Immunization of a young child against yellow fever is advisable if it is going to a definite yellow fever area. There is no risk of hepatitis from this vaccination, as the vaccine now manufactured no longer contains the human serum which formerly sometimes caused jaundice. The dosage is the same as for adults. Active immunization against diphtheria may be performed when at least fifteen days have elapsed after passive immunization.

LICHEN PLANUS AND GOUT

To the Editor:—Has any one ever described a connection between lichen planus and gout? In one of my cases an attack of gout causes the skin condition to disappear. Whether it is the gout that is responsible for this or the colchicine he is taking is something that would be interesting to know.

Charles A. Beck, M.D., Chicago.

ANSWER.—A review of a considerable literature of recent and past years has failed to reveal any relationship between lichen planus and gout or any cases in which the two conditions were coincidentally associated. It would be of interest if the correspondent or other physicians would note the effect, if any, of colchicine on lichen planus not obviously associated with gout.

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PSYCHOLOGIC ASPECTS OF CONVALESCENCE: XX

MAJOR KEEVE BRODMAN

MEDICAL CORPS, ARMY OF THE UNITED STATES (INACTIVE)

BELA MITTELMANN, M.D.

AND

HAROLD G. WOLFF, M.D.

NEW YORK

Sick and wounded soldiers in this war are in many ways more fortunate than those in the last war. They are being treated with benefit of advances in chemotherapy and in medical and surgical procedures; they are being transported with a minimum of trauma, and rapidly, to hospitals and units where they receive definitive treatment. Moreover, they find in their medical officer a physician who has a broader understanding of the psychologic aspects of disease.

The duration and course of convalescence are deeply influenced by the psychologic reactions of the patient. Their importance cannot be overemphasized. The recognition and management of personality disturbances plays as great a part in treatment as does the use of specific medical and surgical procedures. Employment of adequate measures for combating resentments, dissatisfactions, anxieties and fears will minimize symptoms during convalescence, shorten its duration and increase the proportion of completely rehabilitated patients.

I. THE PROBLEM

The incidence of personality disturbances in the armed forces is related to such factors as dislocation as regards family, friends, work, and life plans; regimentation; anxiety-provoking situations, and changes from ideals inherent in peace to others associated with war and bloodshed.

These factors affect all men. The possibility is constantly present that personality disturbances will be precipitated or that minimal disturbances will become aggravated. This danger is especially great during any bodily disorder. These personality disturbances then interfere seriously with recovery and return to duty.

Recent studies have shown that all males of military age can be graded according to their neurotic potentiality and military adequacy.¹ About 80 per cent, barring a 'Tobruk,' a 'Guadalcanal' or a serious infec-

tion of trauma, have no major difficulty. The next 10 to 15 per cent, who have a greater neurotic potentiality, will, with a little luck and minimal aid, successfully adjust themselves. This group contains many persons of high military usefulness. It is doubtful whether it is profitable for the military services to expend time and energy on the worst 5 per cent, who in all probability are unsuitable for military life.

The problem of the medical officer is, then, to concentrate on the remaining 95 per cent, to mitigate the deleterious effects of military experience, hospitalization and illness.²

Perhaps the most important group of all to the physicians in the armed forces is composed of those individuals whose illness from infection or trauma and whose convalescence are complicated and distorted by personality problems. Although all freely admit that such complicated clinical situations exist, the magnitude of the problem is not generally appreciated. Some patients shuttle back and forth between the neuropsychiatry section and the medical or surgical service without either department evaluating both aspects of the disease. Some, because a structural defect is present which could possibly be held to account for the patient's complaints, remain in the medical and surgical wards for undue periods with no investigation of the personality factors.

To define and permit a better approach to this problem, a survey was made of the incidence of personality and psychosomatic disturbances in patients in medical and surgical pavilions of military hospitals.³ Four hundred and fifty unselected admissions to such wards were studied. A psychiatric interview covering significant aspects of the personality and service experience of the individuals was carried out in each case and the percentage of those with 'mild,' 'moderately severe' and 'severe' neuroses determined.⁴ A relatively small group was found to have severe neuroses and a larger number to have mild personality disturbances. The term 'severe' is used to indicate a disorder which will seriously impair the capacity to resume military duties, while 'mild' indicates that personality problems will delay the return to full duty.

These personality disturbances were unrecognized by the medical officers in charge as factors which complicated the patient's response to infection and trauma, which retarded convalescence, and which were likely to lead to decreased military efficiency.

Prepared at the request of and presented under the auspices of the Committee on Convalescence and Rehabilitation of the Division of Medical Sciences of the National Research Council.

The specific studies mentioned in this report are derived from the New York Hospital and the Departments of Medicine (Neurology) and Psychiatry, Cornell University Medical College, New York, under a contract with the Committee on Medical Research of the Office of Scientific Research and Development.

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A. *Definition of 'Psychoneurosis.'*—A person designated as 'psychoneurotic' is an individual who has an exaggeration of the feelings and bodily reactions found to some degree in every one. Thus, when some average individuals stand up to address a group they have a momentary feeling of insecurity and tachycardia; when facing a critical mission some are anxious and have to urinate and sometimes defecate frequently; during a perilous experience many individuals are tense and have periods of dyspnea and apnea; when life is threatened they are fearful, and they may vomit and sweat. Broadly speaking, 'psychoneurotic' patients differ from other persons in that these reactions are more readily precipitated and are more severe, persist longer and interfere with adequate performance. In those with so-called 'psychosomatic' disorders the bodily components of these general reactions dominate. The emotional accompaniments may not be easily discerned. In some instances the circulatory, glandular and smooth muscle reactions are so severe as to damage tissue and endanger life.

It is uncommon in the armed forces to find a soldier or sailor whose moods or attitudes alone bring him to the attention of the physician. The patient seldom complains of his anxiety, depression or resentment but commonly of his disorders of bodily function, chiefly substernal pain, anorexia, vomiting, stomachache, backache, headache or pains in the feet. For this reason the officer caring for medical and surgical patients, and not the psychiatrist, sees him first.

Even if the individual is aware of his emotion, he may not relate it to his bodily symptoms. He may feel angry but may not connect that feeling with the pounding of his heart or the burning in his stomach, or the lonely and overdependent individual may feel homesick but may not connect his feelings of bodily fatigue with his depression, or his loss of appetite with his feelings of loneliness and worthlessness.

Certain individuals can stand great hardships of one kind but may break under others. Thus, a man may stand military discipline well, may participate in engagements effectively but may 'break down' when he hears that his mother has died or that his wife has left him. Such a 'break' is most likely to occur if the man has felt that his mother, or his wife, was his only emotional support, the only one who really cared for him.

Personality and psychosomatic disturbances occur in individuals undergoing stress. Anxious individuals 'break' or become at least temporarily inadequate for the military situation more easily than others during physical stress. The inability to rest and to get adequate sleep, together with monotonous food or hunger, contributes to the 'break.' Likewise, infection and trauma weaken resistance. Some individuals of the strongest fiber have 'broken' under such conditions as existed on Guadalcanal: continuous threat to life, limited food, impossibility of resting or sleeping, having to engage in battle while ill with malaria, being bombarded while in the hospital.⁵

B. *The Role of the Nonspecialized Medical Officer.*—Attached medical personnel are in a better position to learn the psychologic aspects of the soldier's or sailor's complaints than are the officers in hospitals. The medical officer attached to troops lives with them. He is aware of the specific problems and difficulties in the 'outfit,' and he knows when rumors or 'high feelings'

are causing upsets. These are reflected in the number and nature of his morning sick calls. He learns which men break down easily, who are chronic complainers, who have anxieties. He is in close touch with the line officers and can get information from them and give advice about the probability of 'breakdown' among the physically and emotionally vulnerable. He can evaluate a complaint in the light of the past history and service performance. He knows all these things before the patient begins to tell his story; the hospital specialist must discover them by questioning. The general medical officer sees him only after incapacitation, while the psychiatrist usually sees him when his breakdown is severe. The attached medical officer is thus the one who sees the patient when therapy can be most effective.

The average medical and surgical officer, even when he has had no special training in psychiatry, should be fully capable of doing this essential work. Continued observation, practice and occasional reading can give him understanding and skill. He does not have to be thoroughly conversant with the theories of psychodynamics any more than a surgeon or a physician has to have at his finger tips the latest facts and theories of physiology. Military physicians have an unparalleled opportunity to become acquainted with basic principles of the recognition and management of personality and psychosomatic disorders and to develop a skill that will make them of great value to the armed services and to the patients they will treat after returning to civilian practice.

Failure to recognize personality factors in disease results in needless and extensive investigation and hospitalization which not only put a strain on the medical corps and its facilities but also intensify and fix a neurosis.

The degree of psychologic disturbance precipitated by hospitalization or prolonged illness may be of such severity that it plays a major role in the course of an illness. A long convalescence increases anxiety and diminishes self confidence and desire to return to duty. Data to support the view that the patient's attitude is an important factor in determining the length of convalescence have been assembled by Powers⁶ in a recent summary of his experience with surgical patients. In an experimental group of 136 as compared with a control group of 98 he found that patients who had had major abdominal operative procedures and who were allowed to become ambulatory one to three days after operation were able to return to work in approximately one-half the time required by those patients who were kept in bed the conventional number of days after operation. Postoperative complications were minimal and about the same in the two groups. Outstanding is the fact that the convalescent period was cut down by approximately one half.

Rusk⁷ has demonstrated in a group of 645 patients from the Army Air Forces suffering from atypical pneumonia that an organized physical reconditioning and educational program shortened convalescence from an average of forty-five days with 30 per cent recurrences to thirty-one days with 3 per cent recurrences. A more recent study in the same branch of the services of patients with atypical pneumonia already on such an

6. Powers, J. H.: Early Activity of Postoperative Patients, Convalescence and Rehabilitation, Report 2, National Research Council, April 15, 1944.

7. Rusk, H. A.: Report on Convalescent Training in Army Air Forces Hospitals: A Summary of the First Fifteen Months Experience, Report of Baruch Committee on Physical Medicine, April 1944, p. 90.

S. Smith, E. R.: Neuroses Resulting from Combat, *Am. J. Psychiat.* 100: 94, 1943.

accelerated program has been made by Karpovitch.⁸ It was shown that when they were allowed to engage in 'stepping up exercises' within forty-eight hours of becoming afebrile, instead of after six days or more, the patients were able to leave the hospital in about one week less than the twenty-three days of the average hospital stay. It would seem probable that a major factor in this time saving is a difference in the attitude engendered in the patient by an awareness that his doctor looks on him as well enough to be out of bed and exercising.

Also the experience gained from patients with head injury has indicated that many of the symptoms of the post-traumatic syndrome are related to the anxiety engendered during prolonged bed rest.⁹ It has become common practice to urge the patient to get out of bed as soon as possible, or as early as he desires, the inference being 'that not the least important point of the treatment is that the seriousness of the injury is minimized not only by the statements of the physician but by the permission for early activity.'

The problem of the duration of convalescence with patients in military hospitals is more difficult than with those in civilian hospitals. For a civilian, hospitalization usually means expense and no income; a serviceman has no such incentives to shorten his hospital stay. Remaining in the hospital means relative ease and protection to the soldier or sailor, while return to duty means hardship and danger. Therefore, unless vigorous measures are taken to counteract what is akin to a compensation neurosis, hospitalization is often unnecessarily prolonged.

Our prime purpose in this communication is to present ways and means of dealing with manifestations of personality disturbances that occur in association with infection, trauma and other bodily disorders. When recognized early, these are amenable to treatment and, indeed, to such treatment as can be given by the nonspecialized medical officer. In the following section methods of therapy are discussed.

C. The Ward Round as Group Therapy.—The ward round may be one of the most important prophylactic and therapeutic devices. It is a procedure that is a constructive influence on all patients, whether they are relatively healthy or seriously sick. It incorporates the elements of individual therapy as well as those special features which result from sharing experience with others, acting in a group.

The ward round is a poor time to discuss highly personal problems with patients, yet occasionally patients may be greatly aided when such problems are deftly and objectively dealt with in acceptable language. A patient may be desensitized or deconditioned by frank, open discussion and become aware that his problems are like those of his fellows. The medical officer may single out a cooperative patient and address advice to him which is meant indirectly for the whole group. Never should a patient be scolded or humiliated before the group.

On rounds the patient can be questioned not only about his complaints but also more thoroughly about any improvement he has made. It is easy to let the others know that a patient is better. Improvement may

then become a community affair that reflects credit to the entire ward. The spirit of the group may become so infectious that even the most persistent complainer is caught by it. The bed patients become eager to get up and the ambulatory patients learn to look on discharge to duty as akin to promotion.

If the patients are in one large ward, the medical officer has the opportunity after rounds of talking to the group. He can make announcements of new hospital orders that affect patients, praise or criticize the work of ambulatory patients or read new assignment lists.

Such group instruction includes measures that medical officers routinely institute in the wards without thinking of them as 'psychotherapy.' The patient is made to feel that he is being given individualized and competent medical attention, that he is improving and that he will soon be well enough to return to duty or work. The patient is taught that he is useful and is given the incentive to regain his health. Hospitalization is allowed to symbolize neither pleasant freedom from the rigors of duty nor, on the other hand, a painful or disagreeable experience. The patient is not allowed to think of himself as inadequate or a failure.

All patients should be assigned to a duty in the ward as quickly as possible. This may vary from light assignments such as distributing thermometers to more strenuous work such as sweeping or carrying trays. These duties help the patient to regain confidence in his ability to perform work and emphasize the fact that he is an important and useful member of a community. Patients may be given daily group exercises in accordance with their physical status. The ward master can be placed in charge. Such calisthenics may take the place of the more strenuous games of the well soldier or sailor.

Two features should be stressed in the ward round. The first has to do with the patient's stay in bed. This is not to be considered as a harmless or neutral state. As has already been mentioned, unessential bed rest is a menace. It is well to become suspicious of each day in bed after the temperature is normal. Rules for making the patients ambulatory cannot as yet be laid down, but every day in bed should be a challenge to the physician. Secondly, because every patient must maintain the continuity of his life as a soldier or sailor by learning a new technic or developing an old one, it is during the ward round that the officer in charge can look for progress or work accomplished. The ward officer should make inquiry, examine, advise and encourage as to work done, topics covered and advances made. Such an attitude and behavior on the part of the physician emphasizes that the latter looks on illness as an interruption in the work of a man and not as an end state.

The attitude of the nurses and corpsmen toward the patient is almost as important as that of the ward officer. These assistants should be trained to be understanding and patient with the sick. This, of course, does not mean that a patient is to be allowed to overstep discipline. In fact, it is important that the patient always realize that he is subject to a modified military discipline. Otherwise, during a long hospitalization he may forget that he is a soldier and the return to the rigid discipline of military duty will come as a disagreeable shock.

The good effects of group therapy on the ward round will be enhanced if the medical officer is able to identify

8. Karpovitch, Peter: V. Communication to the Committee on Convalescence and Rehabilitation, National Research Council, 1944.

9. Spurling, R. G., in discussion on McKenzie, K. G.: One Aspect of the Posttraumatic Syndrome in Craniocerebral Injuries. *Tr. Am. Neurol. A.* 69: 103, 1943. Shearburn, E. W., and Mulford, E. H.: Ambulatory Treatment of Cerebral Concussion. *Bull. U. S. Army M. Dept.*, 1943, No. 69, p. 36.

those men who have moderate or serious personality and psychosomatic disturbances which are complicating convalescence from infection or trauma and to give them special attention. An awareness of the large number of these patients and the varied responsibilities of the busy ward physician led to an attempt to devise an 'index' or indicator to point them out. This instrument has been called the Cornell Service Index.¹⁰ It is a paper and pencil procedure, is quick and reliable, is self administered, can be given individually or to groups of any size, can be completed in ten minutes and can be scored within one minute by a nurse or attendant. The 'index' identifies 92 per cent of the patients with severe personality problems and 13 per cent of the mild disorders. One per cent of ostensibly healthy persons will get an abnormal test score. After men who are most seriously in need of help have been recognized, individualized therapeutic measures may be instituted.

II. THE INDIVIDUALIZED MANAGEMENT OF PERSONALITY DIFFICULTIES

To facilitate the identification of those who are most in need of psychiatric appraisal and care, it is recommended that the Cornell Service Index be given to all patients who are capable of completing the procedure. The physician with limited time may concentrate his energies on those patients with scores indicating pathologic reactions.

Patients having symptoms of personality disturbances complicating their illness may be helped by five types of therapy: psychocatharsis, reassurance, explanation, rearrangement of the environment, and regimen. Although these five aspects of therapy will be described in sequence, as though one were to follow the other, no such order is indicated in actual practice. Indeed, reassurance can be given by the physician's first greeting to the patient if he is made to feel that he is an individual rather than a military number. Usually the physician during an interview gains information, allows catharsis, educates by interpreting the data to the patient, and thus reassures him that he is in contact with a sympathetic physician who has the patient's welfare in mind and who will do his utmost to better the situation. Further, the physician will outline a regimen for the patient's recovery, pushing him no more than he can tolerate, but yet with firmness pressing him to his capacity. All of these five steps may occur in one interview in quick succession and in any order.

A. Psychocatharsis.—By this term is meant that the patient is given an opportunity to 'talk it out,' describing his experiences and expressing his fears, resentments, frustrations and anxieties. The physician, in these circumstances, does little but lend an encouraging ear, interfering only occasionally. He may direct the flow or slow and divert it if his intuition tells him that the patient may suffer from the effect of too much self-condemnatory subject matter. Such catharsis is best carried on during the daytime. If it must be practiced at night the physician should from the start give a constructive turn to the discussion. Otherwise the patient may lose sleep and have increased tension and depression on the following day.

To induce catharsis, should it not occur spontaneously, the planned interview is valuable. It is convenient but not essential that this be based on the data assembled on the completed Cornell Service Index which has been given previously to all the patients in the ward. This procedure enables the physician to get necessary information and helps direct the interview constructively. Above all, the physician should aim to learn the attitude of the patient toward his significant answers on the 'index.' To do this the physician must listen attentively when the patient begins to talk about matters of personal importance. Such an interview may be based on the following questions:

1. What are the patient's complaints as indicated by his answers on the 'index' or in his initial conversation?
2. How long has he had them?
3. Has he had similar complaints or other complaints ever before in his life?
4. Under what circumstances did the complaints begin?
5. Is the patient anxious, worried, dissatisfied, angry, lonely? Does he mix well with other people or does he keep to himself? What does he dream about? Does he have nightmares?
6. What is the patient's family situation? Does he have financial problems? Does he feel homesick? Is he worried about wife, children, parents or siblings? Did any of them die? Are any of them sick? How did he react to their sickness or death?
7. Did he have a safe and good home as a child or did either of his parents die? Were they sick and nervous? Did the father drink? Did the home break up? Was he sent to an orphanage or a foster home?
8. Has he had sexual anxieties? What are the facts of his sexual experience and his attitude toward that experience?

The physician should observe the subject carefully during the interview and note whether he becomes anxious or angry, whether he becomes worried, whether his face flushes or turns pale, or whether his breathing becomes difficult. Such changes suggest that significant topics are being touched on. If the patient becomes disturbed, if his answers become evasive or if he says "Why do you ask me this? These are private and personal matters" the physician may explain what these topics have to do with the illness and assure him that the interview will be considered confidential. This may 'clear the atmosphere,' and the patient may be able to continue. If the topics are still too disturbing, it is best to let the issue slide. If one pushes too hard, the interview may have an untoward effect and instead of helping the patient may make him worse.

The physician must control his own emotional reactions and be careful not to reveal any impatience, disgust, anxiety or disapproval which he may feel.

B. Reassurance and Suggestion.—By this term is meant that the physician attempts to persuade the patient by presenting as many facts as possible, that the situation is not as ominous as it appears, that the patient is getting better, that the situation is well in hand and being well managed and that the outlook is good. Furthermore, through his manner and words the physician should suggest constructive or useful ideas and give the patient some conception of himself and his problems that will enable him to 'feel better' about his situation.

The patient is reassured by an opportunity to talk about himself to a sympathetic, understanding individual in a position of authority. This reinforces his self confidence, relieves him of his feelings of helplessness and makes him feel that he has received new strength. It is to be emphasized that the physician's

10. Weider, A.; Brodman, K.; Mittelmann, B.; Wechsler, D., and Wolff, H. G.: The Cornell Service Index: A Method for Quickly Assessing Personality and Psychosomatic Disturbances in Men in the Armed Forces, War Med. 7: 209 (April) 1945.

willingness to assume responsibility and to make decisions and his ability to radiate emotional support give his words a powerful, constructive force. Inversely, the physician's anxiety, procrastination and unwillingness to assume responsibility have an undesirable suggestive effect and undermine the patient's security. (See cases 5 and 6 under III B.)

C. Explanation and Interpretation.—By this is meant that the physician on the basis of his knowledge of the patient specifically, and of mankind in general, attempts to tell the patient in acceptable and understandable language what the situation is and what can be hoped for. He may give the patient an explanation of his symptoms and describe in simple terms the dynamics of bodily changes associated with fear, resentment, anxiety, frustration and dissatisfaction and so dispel misconceptions, ignorance, rumors, fears and discouragement. It is for this reason that a clear prognosis should be formulated promptly, stating what the worst to be expected is and what the best, and the proper steps involved in achieving a desirable outcome. Operative procedures should be preceded by a frank discussion with the patient concerning when he may expect to be out of bed. Besides interpreting symptoms the doctor may instruct the patient on the facts of mental life and attitudes. This aspect of the relationship can be given individually but may often be managed successfully in groups.

The doctor must never give the impression that he believes the patient's complaints are 'imaginary.' He must appreciate that the headache or the stomach discomfort is 'real' and then explain that these complaints do not start in the head or in the stomach but are closely related to the patient's experience in military service and to his attitudes in the existing situation. Finally, he must make it clear that the fears and dissatisfaction and loneliness are not caused by the headache or stomach trouble.

D. Rearrangement of the Environment.—By this is meant that the medical officer shows an awareness of the patient's problems and temperament and a desire to fit the individual into the situation in the military services for which he is best suited. It must be emphasized that an individual with rigid, fixed, uncompromising attitudes can never be properly placed and that the patient must understand his responsibilities when attempts are made to find a job for him. It should also be explained that no attempt will be made to ease his stay in the services. A rearrangement may lead him to a post which in the eyes of many is 'tougher' than his former one but only to give him work better suited to his needs.

On the other hand, it often becomes the medical officer's duty to explain to a disgruntled, resentful, misfitted soldier or sailor that his being in a job in which he cannot use his special training is due to a plethora of such specialists or to some uncontrollable military exigency rather than to indifference on the part of the service.

E. Regimen.—An ordered or organized program for convalescence is an age old and invariably useful therapeutic device. There is no instance in the history of therapy where a physician can be so wrong in one sense and yet so right in another bigger sense. The rationale of baths, physical therapy, occupational therapy, exercises, sports, competitive games and diets cannot be reduced to simple physical and physiologic terms alone. Feelings of security are engendered in patients by pro-

gressive procedures toward the goal of full recovery, provided each one is able to feel that the regimen has been carefully worked out and is being closely supervised.

Sports and games do improve circulation, but they also enhance skill and strength and induce 'fitness,' develop anew the feeling of being part of a team, arouse competitive interest, increase self confidence and aid in relaxation. Occupational therapy affords distraction, supplies variety to the day's activities and gives satisfaction when the assigned task is completed successfully. Physical therapy aids in relaxation and supports the conviction of being cared for.

Regimens of equal therapeutic value, if each has the enthusiasm of the directing physician, can result from diametrically opposed concepts of therapy. Thus, the patient may attribute his recovery to this or that diet, to 'electrical waves' or to specific arm or leg exercises, even though it might more properly be attributed to his improvement in morale. Such false attribution is of no major significance. It therefore becomes of utmost importance that the medical officer organize the step by step progression in the management of convalescence, using his imagination and whatever equipment is available as a means of engaging the individual in the process of resuming his life in the armed forces. A well planned regimen should also include arrangements for recreation.

The regimen should never be punitive. The routine should not purposefully be made disagreeable with the aim of making the patient return to duty in preference to remaining in the hospital.

III. VARIETIES OF PERSONALITY DISTURBANCES OCCURRING IN PATIENTS IN MEDICAL AND SURGICAL WARDS OF MILITARY HOSPITALS

In the aforementioned survey³ of the incidence of personality disturbances among 450 unselected admissions to medical, surgical and orthopedic wards of military hospitals, these disorders were classified as follows: (A) preexisting personality disturbances aggravated by infection or trauma; (B) personality disturbances precipitated by or first becoming evident in association with infection or trauma; (C) personality disturbances in patients with serious defects in structure or function; (D) personality disturbances in patients without gross defects but with excessive complaints and disturbance of function; (E) trauma resulting from personality disturbances. These disturbances were unrecognized as factors complicating infection and trauma. The case histories which follow illustrate the types of problems and in some instances the operation of simple therapeutic measures.

A. Preexisting Personality Disturbances Aggravated by Infection or Trauma:

CASE 1.—A man with headaches following pneumonia feared that he had the same trouble as his invalid father.

A seaman aged 23 contracted pneumonia. He complained of headache, pain in the chest and cough. His temperature became normal in four days. His cough disappeared, as did his difficulties in breathing and the pain in his chest. His headaches, however, continued, and he experienced nausea and vomiting occasionally. Ten days after the onset of his illness, his lungs were completely 'clear' both on physical and on x-ray examination. Nevertheless the headache and the stomach complaints persisted. Neurologic electroencephalographic and spinal fluid examinations contributed nothing.

The headaches and the stomach complaints were severe and incapacitating and prevented his return to active duty. Further,

the patient worried about them and was becoming more and more anxious.

The following information was obtained from the patient in an interview. An abbreviated excerpt follows:

Physician: What is your complaint?

Patient: I have headaches. It gets me in this part of the head. It spreads all over.

Physician: How bad are your headaches?

Patient: They are pretty bad. When I get them I can't do any reading. My stomach is upset. I don't know what I get them from. (The patient's face showed anxiety.) I hope nothing is wrong with my brain.

Physician: Are you worried about these symptoms?

Patient: Well, yes. They just keep coming since I had the pneumonia. I don't know what is wrong with me.

Physician: Have you ever had them before in your life?

Patient: Yes, I had a little after my head was hurt three years ago. (The patient relates that he received a blow on the head by being thrown against the windshield of an automobile. It was not a severe blow. He was dazed and felt nauseated. Within the week after the accident his symptoms were gone except for slight headache.)

Physician: How are your parents?

Patient: My mother is well, but my father is sick. He can get about, but he had an accident fifteen years ago on the railroad. He hurt his head badly and was in the hospital. Since then he has been nervous. He gets bad headaches, and he can't eat the right food, and he vomits. I used to see him suffer; it upsets me quite a bit.

What had these facts to do with the present illness? The patient had been performing satisfactorily during his ten months of service. He liked his unit. When he became sick he had to leave his ship, and he was lonely without his comrades. He was eager to get out of the hospital as quickly as possible so as to be able to rejoin his ship before it left port.

It is to be noted that his first headache was an accompaniment of fever. However, during this depressed state the headache reminded him of his earlier head injury and aroused his old fears that he would have the same ailment his father had for so many years.

It was explained to the patient that his headaches were not due to damage to his brain but that they were connected with his anxieties about his father, himself and his unit. Assurance was given him that if he could dispel these anxieties his headaches would stop. He was also told that he should not brood but should take an active part in useful activity, such as reading about naval problems that interested him and acquiring new manual skills.

In a week the patient's headaches and nausea were gone, and shortly thereafter he returned to duty.

CASE 2.—Pneumonia aggravated nightmares and 'nervousness' in a seaman whose ship had been torpedoed ten months previously.

A seaman aged 26, who had served effectively in the Navy for two years, participated in the campaign in the South Pacific, where his ship was torpedoed. Following this he experienced recurrent nightmares, jumped at sudden noises, had spells of shaking and trembling, was restless and dizzy and perspired excessively. However, he never reported these complaints. While in New York ten months later he developed pneumonia and was admitted to the hospital. The dizziness, light-headedness, trembling and prostration were aggravated and prolonged his convalescence.

B. Personality Disturbances Precipitated by or First Becoming Evident in Association with Infection or Trauma

CASE 1.—A man with nephritis following sore throat had resentment about sulfadiazine therapy and guilt feelings about gonorrhea, which he felt to be causative factors in his kidney disease.

A seaman aged 24, who had been in service for two years and had effectively participated in two major engagements, developed a sore throat. He was treated with sulfadiazine and was freed of his sore throat, but nephritis followed, and he complained of pain all over his body. Moreover, he felt guilty and worthless and was both fearful and resentful for the following reasons: he had contracted gonorrhea a year before the present illness, but despite the fact that he was cured in a short time he feared that his nephritis might be a result of the gonorrhea. He was resentful because he believed that his kidneys had been damaged by the sulfadiazine which

had been given him for his infections. Explanation and reassurance dispelled this man's complaints.

CASE 2.—A man with protracted convalescence following rheumatic fever feared serious complications because he had not been kept in bed long enough.

A private aged 21 with six months of service entered the hospital with complaints of joint pains and fever. A diagnosis of acute nasopharyngitis was made. The symptoms persisted, and acute rheumatic fever was diagnosed on his fourth hospital day. He was transferred to a general medical ward and kept at 'absolute bed rest' for eight weeks. During the last two of these his temperature, pulse rate, electrocardiogram and sedimentation rate returned to normal, and all pains were gone. He was then allowed out of bed, but, instead of continuing to improve, he complained of extreme fatigue, palpitation, dizziness and joint pains. These symptoms increased in severity until by the end of two more weeks he had become unable to get around and had taken to bed. Laboratory and physical examinations showed no evidence of exacerbation of the rheumatic fever. Symptoms were far out of proportion to demonstrable effects of the acute phase of the disease or the inactivity of 'complete bed rest'.

During an interview with the medical officer the patient asked about the rheumatic fever ward. He had heard that there was a special ward in the hospital for patients with acute rheumatic fever. He wanted to know how that ward was different from his, and why he had not been sent there. He asked how serious his disease was, because he had a cousin who became an invalid following rheumatic fever. A specialist had once said that this cousin should have remained in bed for a longer time during the acute attack. The patient expressed considerable anxiety about the seriousness of his own disease and his chances of recovery.

The medical officer assured him that his disease had been mild and left no ill effects. The patient was then transferred to the rheumatic fever ward, where a planned system of work therapy and group psychotherapy was in effect. Within three weeks the patient had been relieved of his anxieties and became completely ambulatory. A short time afterward he was feeling fit and had no complaints.

CASE 3.—Feelings of anxiety, insecurity and failure in an athlete following a broken leg.

A private aged 24, in service for nine months, fractured his right ankle while jumping over a ditch during maneuvers. The injury was a simple fracture of the tibia without complications and mended rapidly. However, he became restless and agitated, slept poorly and lost his appetite. His first attempt to use his leg was awkward and painful, and he said that his fears were confirmed that he would never be able to walk again without pain and a limp. He avoided using his leg, used it poorly when he did, and thus prolonged convalescence. As a child he had been sickly and unable to compete in games. By dint of great perseverance and effort he overcame his 'weakness' and became a successful athlete, frequently winning races. The fracture of his ankle returned this man to the insecure state of his childhood, and he feared that he would again be unable to hold his own or to compete. Repeated reassurance about the good condition of his ankle dispelled his anxiety and encouraged him to walk.

CASE 4.—A sailor who had had three minor traumas of his left leg developed a serious limp following pneumonia.

A sailor aged 21 recovered quickly from pneumonia but his convalescence was prolonged because he limped on his left leg, which he held rigidly extended at the knee. At the onset of the pneumonia he had fainted and had bruised the skin over his left hip in falling. At the end of a week no superficial or deep tenderness remained in the area, and there was no evidence of injury to nerve, muscle or bone to account for the halting gait. A diagnosis of hysterical limp was made.

Six months prior to this illness the sailor during a naval engagement had received a superficial wound in the left calf, so slight as not to require hospitalization. This was followed by a limp. Again, three months later, a heavy swing gun hit him on the left thigh, resulting in a painful contusion which incapacitated him for two weeks. Following his recovery he had a limp

which prevented his climbing ladders, but he remained on duty and his performance was effective.

It was learned that at the age of 16 the patient had been gored by a bull in both thighs and the left groin. He fully recovered from the accident after two months' hospitalization, but he walked with a limp for a short time. The man was given an opportunity to talk freely about his dislike for the Navy, his homesickness, his resentments and anxieties which had become focused in his complaint by the series of minor accidents to his left leg. Within a short time his gait became normal and he was returned to duty.

CASE 5.—Following a minor head injury and exposure to the care of an anxious, oversolicitous physician, an effective sergeant developed a post-traumatic neurosis.

A WAC sergeant aged 24 had been in service for about two years. She had adjusted well, had shown special aptitudes for army work, and had been steadily promoted. While performing her duties she slipped on the ice and struck her head. She was unconscious for a 'few minutes' and was immediately hospitalized. The ward officer kept her 'flat in bed' for ten days. On her way to the latrine on her second day out of bed she felt 'dizzy' and fell. The ward officer exhibited great concern and kept her in bed for a period of another two weeks. After she was again allowed to get out of bed he left strict orders that under no circumstances was she to walk anywhere without a nurse or attendant at her side. This regimen was kept up for the rest of her convalescence in the hospital, a matter of three weeks. During this time she experienced more dizziness and headaches of increased severity. She was given leave to go home but returned to the hospital in a short time, stating that she was afraid of venturing from her bed or room unescorted, because when walking alone she felt extremely dizzy and faint. She could not care for herself. The patient was discharged from the Army with the diagnosis of post-traumatic concussion syndrome.

CASE 6.—An able young officer experienced a minor injury or infection of the shoulder, which because of the undesirable suggestions of the medical officers became the basis of incapacitating hypochondriasis.

A young, high ranking officer had distinguished himself from his student days at West Point. He was highly esteemed by his colleagues and superiors, and his prospects for the future as a soldier were brilliant. He developed shoulder pain while on duty at one of the Pacific outposts. Hospital facilities for complete diagnosis were not available. The medical officers on the island had great concern about the implications of the pain which the officer experienced. They left him with the impression that it might be the result of either a 'severe cardiac condition,' 'severe avitaminosis' or 'some nerve or spinal disease.' He was given many injections of thiamine hydrochloride. The anxiety and uncertainty of the medical officers in relation to the diagnosis and the possible outcome of the disease were transmitted to the patient. He developed severe hypochondriasis, which incapacitated him.

The patient was ordered back to the United States, where a thorough investigation was undertaken. The fact that tests revealed no disease, coupled with the explanation that he had no structural defects, was sufficient to relieve his anxiety, and all hypochondriacal symptoms disappeared. He was able to return to full duty.

C. Personality Disturbances in Patients with Serious Defects in Structure or Function

CASE 1.—A seaman condemned himself for his anxieties and fears following the torpedoing of his ship and lost 30 pounds in weight.

A seaman aged 30 effectively participated in several engagements without injury to his vessel or to himself. In the last engagement his ship was torpedoed and sunk. From that time he had nightmares and trembling. He was restless and anxious, and he complained of dizziness. His symptoms gradually became worse. He lost 30 pounds (13.6 Kg.). He was admitted to the medical ward, where no infection, new growth or endocrine disorder could be found. It became apparent that his loss of weight was the result of his loss of appetite and deficient food intake, associated with anxiety and tension, which the patient

did not wish to acknowledge. He experienced fear in connection with the sinking of his ship. He was a man of excessively high personal standards and considered himself worthless if he sought help for his anxieties and fears. Thus he was in conflict. He was afraid and wanted safety, but he condemned himself for his weakness. He tried to carry on without help, but his symptoms persisted. He felt helpless. After thorough discussion of these factors, his appetite and body weight were restored.

CASE 2.—A conscientious, hard driving engineer was anxious about his family and resentful about his assignment and developed a duodenal ulcer.

A noncommissioned officer aged 35 was admitted to the hospital with pain in the abdomen, which had its onset about two hours after meals. X-ray examination established the diagnosis of duodenal ulcer. The patient had been for many years a conscientious, ambitious, hard driving individual. He aimed to do his job not only well but flawlessly. He worked effectively in the Army as an engineer. He was, however, very much concerned about his family because the members could not live as well after he entered the service as before. He felt that he should have provided better for them. He was also worried about his health. His stomach complaints appeared when, instead of getting a leave as he had expected, he was transferred to an urgent job. He was resentful and disappointed and worried all the more about his family and about his new job. It was in this setting that his complaints began. The management of his illness had of necessity to include consideration of his personality problems.

CASE 3.—A soldier in Officer Candidate School, who felt pushed into assuming responsibilities that he feared and disliked, developed dizziness, headache and arterial hypertension.

A soldier aged 33 had ten months of service and was completing his third week of training in Officer Candidate School. He reported sick with complaints of dizziness, pains and throbbing of the head, continual buzzing in his ears, weakness, tachycardia and palpitation. The complaints had persisted for one month and were increasing in severity. A moderate hypertension was present, varying between 140 and 150 systolic and 90 and 95 diastolic. The patient stated that his blood pressure had always been about 120/80. The rest of his history and physical and laboratory examinations were negative. He was in the hospital for consideration of discharge from the Army. When the patient first reported his complaints and the hypertension was discovered, it was inferred that the symptoms were caused by a rapidly developing hypertension with associated cardiac strain and encephalopathy. Physical examination revealed no cause for a rising blood pressure.

It was noted that the duration of symptoms corresponded approximately with the length of time that the soldier had been in Officer Candidate School. He was therefore asked how he liked the school, what his reactions were toward becoming an officer and about his family, previous profession, schooling and general likes and dislikes. He said that he disliked Officer Candidate School intensely, that it made him 'nervous' and that he constantly worried about assignments and examinations until he developed insomnia. He was afraid to assume the responsibilities of an officer and had applied for Officer Candidate School against his own wishes and only because his commanding officer had insisted that he was good officer material. 'I was afraid to tell any one that I wanted to quit school.' He had graduated from college and for many years was the assistant buyer in a firm owned by a relative. He was single, an only child and had always lived at home with a strong willed and efficient mother, who completely controlled the home. 'She was a very sensible woman and she's always given me good advice.' He liked to be with people who were firm. 'I don't have to worry about what to do.' He disliked to assume responsibility. 'I'm very conscientious and I worry about whether I know enough to do a good job.'

This soldier had an excessively dependent personality, and attending Officer Candidate School and the thought of being a leader of men in a position of responsibility created considerable anxiety. Inquiry made it obvious that his personality was an important factor in the production of his symptoms. The suggestion was made that he resign from school and return to his

outfit, where rapid advancement to his previous grade of sergeant was almost assured. After a few days he accepted the suggestion and resigned from Officer Candidate School. He was seen several times in the next few months. Back again in his old post his symptoms disappeared and his blood pressure became stabilized at the previous level of 120/80 to 130/85. He became cheerful and his anxieties lessened. He said 'Going to Officer Candidate School was just like a bad dream.'

D. Personality Disturbances Without Gross Defects But With Excessive Complaints and Disturbance of Function

CASE 1.—A timid man, overdependent on his mother, had burning in his stomach, aggravated by his military experience.

A private complained of gas, pain and burning in the stomach after eating. He had been in the Army for three months, and during this time these complaints were persistent and had become incapacitating. He said that he had to be on a special diet consisting only of milk, white bread and vegetables. He was frightened on the rifle range, had fallen out of marches five times and developed panic at hearing noises when he had to stand guard at night. On physical examination no structural defect was found. It was revealed that he had complaints of a similar kind for at least six months before entering the Army. He had always been overdependent on his mother, had 'never been away from home' and never ate in a restaurant because it 'made him sick.' At the end of three months this man had still not adjusted himself to military life. The prognosis as regards usefulness in the Army appeared poor, and no therapeutic efforts on the part of the medical officer would be likely to result in a return to duty.

CASE 2.—An ambitious noncommissioned officer developed pain in the legs when faced with competition and possible demotion.

A soldier aged 28, with twenty-two months of service, had spent most of the last six of these as a patient in the hospital. He first entered the hospital with complaints of a few weeks duration of swelling of the lower extremities and pain in the legs on standing and walking. He had never had these complaints before; during sixteen months in the Army he had reported only two or three times for sick call. The pains incapacitated him so that he could only hobble about. He never took an unnecessary step and while in the hospital refused all passes to visit the post exchange, his friends or town. In the short periods when he was returned for trial of duty his officers reported that he would do what he was told without complaint but with such obvious difficulty that he was relieved of duty. He impressed his officers and the medical officers alike as being willing and eager to work yet physically incapacitated. During his hospitalizations he was subjected to thorough examination and laboratory investigations, but nothing was found to explain his complaints. The edema of which he had complained was never observed by any medical officer. The long period of hospitalization finally caused him to become dejected and dispirited. He expressed unhappiness over the fact that he could no longer work and that he was a burden to the Army instead of a help.

The soldier had been drafted in one of the first contingents of troops and because he showed some ability to drill recruits he had been put in a permanent cadre in a training camp. He was promoted until he became a platoon sergeant and would have gone higher except for his lack of education and inability to do paper work. Shortly before his hospitalization new men had been attached to his company, some of whom showed greater ability than did the patient. His commanding officer told the medical officer that 'This man is good but some of the men we now have are better.' His company commander let him know that he would probably be replaced by one of these men. At that point the patient had first reported for sick call with complaints of pains and swelling that prevented his performing his duties. He said that he had always been ambitious but that the lack of education had kept him from realizing his ambitions, that he derived great personal satisfaction from being a non-commissioned officer while men with more education were only privates, and that the threat of reduction in grade made him feel a failure. He said that it would have been extremely painful for him to write home to his wife that another man had proved better than he was. He admitted that his reduction in

rank occurred while he was a patient in the hospital and not while on duty, because he was able to say that it was done because he was sick. His wife was a college graduate and had for many years run and owned a successful beauty shop from which she earned much more money than the patient.

After this interview steps were taken to get the soldier to assume a healthier attitude toward his demotion. Also arrangements were made for transferring him to a new outfit then being formed, in which he had a chance for promotion. He was encouraged to go back to duty; an interview was arranged with his new commanding officer, who told him that if he worked hard he would be promoted. It was explained that he might have trouble with his feet for a while but that the condition would gradually get better; he was complimented on his upstanding character and military bearing and in other ways urged to think of himself as a success rather than as a failure. After this therapy by encouragement, suggestion and adjustment of the environment, the soldier was discharged back to duty. He was seen occasionally during the next four months, during which time he regained self confidence and was promoted to corporal. After the first few weeks his complaints of pain and swelling of the feet ceased and he was able to perform all his duties. He talked with enthusiasm of his new unit and the chance of being promoted to sergeant.

E. Trauma Resulting from Personality Disturbances

CASE 1.—A man who walked in his sleep fell out of his bunk and broke his leg.

A private aged 21 had since puberty been sleep walking about once every two weeks. One night about two months after joining the Army, during somnambulism, he walked out of the upper bunk he was occupying and fell, fracturing his femur. This was the first serious injury he had sustained while sleep walking. On previous occasions while sleeping on a cot or lower bunk he had received contusions and abrasions.

IV. PREVENTIVE MEASURES

As indicated in the foregoing case notes, convalescence may be significantly shortened by simple procedures if the existing disturbance is not too severe or long standing. Moreover, by attention to the attitudes and feelings of healthy trainees, Cohen¹¹ has been able to reduce materially the incidence of hospital visits and to increase the effectiveness of a carefully controlled group of soldiers. Two companies were chosen at random, both filled at the same time and composed of men of approximately the same age and social and economic experience. The experimental group was exposed to four talks on consecutive days of their basic training, which covered (1) natural civilian resentments of army life, (2) regimentation, (3) fear and (4) a summary of all adjustment factors.

Beginning on the first day on which these companies filled and on which the talk began, a record was kept of all sick calls and hospitalization until both companies completed their basic training. The following was noted: There were approximately three times as many sick calls for psychosomatic symptoms in the control group, and between ten and eighteen times as many hospitalization days for psychosomatic symptoms in the control group, as in the experimental group. Also time lost by AWOLs in the control group was twenty times greater than in the experimental group. Finally, performance grades of the experimental group were slightly higher than of the control group.

Another example of what may be achieved by the simplest procedures aimed at the problem of adjustment in the armed forces is as follows: In the station hospital of one of the training camps there were several

11. Cohen, R. R.: Mental Hygiene for the Trainee, *Am. J. Psychiat.* 100: 62, 1943; Factors in Adjustment to Army Life: A Plan for Preventive Psychiatry by Mass Psychotherapy, *War Med.* 5: 83 (Feb.) 1944.

general medical wards and no general medical clinic for ambulatory patients. It was found that many patients in these wards had complaints based on poor adjustment to military life with resultant fears, anxieties, resentments and frustrations. There was instituted a general medical clinic to screen out other such patients before admission to the hospital. At first the medical officers working in the clinic objected to it on the grounds that the patients were not like those who had previously been admitted to the general medical wards; they were not 'medical' but should have been sent to the 'NP' clinic instead. Within six months, however, the number of general medical wards had been greatly reduced. During this time the Army personnel at this camp had not been decreased in number, nor had the special medical wards or the 'NP' wards increased in number or size. This was accomplished because the officers working in the clinic were able to give prompt attention to complaints and provide reassurance and instruction, and because they realized that often individuals with personalities with high neurotic potentiality deteriorated while in the hospital. Furthermore, they appreciated that their own hospital patient load decreased if they were able to keep more soldiers on duty.

In the outpatient clinic of the same hospital, special attention was given to the individuals with complaints referable to the heart but without evidence of structural defects of the heart. All patients found on examination to be in this group were given group psychotherapy by the cardiologist. The number of return visits was reduced to about half within two months of the time of establishment of this psychotherapeutic clinic.

The value of information in preparing men for adverse circumstances is shown by what can be accomplished in filariasis and malaria. As indicated by Rome and Fogel,¹² filariasis is dreaded by troops in tropical climates because they have ample opportunity to see bizarre end results which involve the sexual organs, because it is generally known that there is as yet no satisfactory therapy, and because symptoms and signs of infection are often delayed and insidious in onset. Therefore, infection with filariasis in almost all patients is complicated by fear of sterility, disfigurement of their reproductive organs and of impairment of sexual function. Impotence, so common in anxious persons, therefore, frequently results.

Group instruction in simple terms, concerning the pathology of this disease, supplemented by illustrations and diagrams, can do much to allay fears of disfigurement, impotence, sterility or genital transmission. Instruction on the relation of impotence to anxiety obviates many false conclusions.

Apprehensions about malaria also exist and can be satisfactorily managed by group instruction as to what the disease will and will not do.

V. REHABILITATION

Soldiers who are about to be discharged with a Certificate of Disability have their eagerness to return to their families overlaid with a hesitancy in leaving the Army and a sense of personal failure and inadequacy. This is especially noticeable in those individuals with disability acquired in line of duty. The optimum time for restoring to these men their self-respect and self confidence is during this last period

of army hospitalization. The family's interest and understanding in such a program is of prime importance. Any effort in this direction is sure to pay dividends by enabling soldiers to become productive citizens rather than dependent pensioners of the Veterans Administration.

INTRACTABLE AMEBIC COLITIS

WITH SPECIAL REFERENCE TO THE ULCERO-NECROTIC FORM

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AND

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NEW ORLEANS

Amebiasis is far more prevalent in the United States than is generally appreciated. Although areas of hyperendemicity, such as are present in the Orient and tropics, are not found in this country, the states bordering the Gulf of Mexico may be generally considered as comprising an endemic area, and sporadic cases have been observed over the entire country. In New Orleans alone it has been estimated that the protozoon is harbored by close to 15 per cent of the general population. Most of these cases are symptomatically below the clinical threshold.

Amebic colitis exists as a pathologic entity without the classic picture of dysentery in a high percentage of the cases. Liver abscess, percentage wise, is relatively rare. The symptomatology varies from mild, rare, abdominal discomfort and constipation to acute abdominal pain of the most extreme degree and uncontrollable diarrhea; the duration may range from a few days to many years. The disease often simulates other abdominal conditions so closely that patients undergo laparotomy for such presumptive diagnoses as chronic cholecystitis, appendicitis, pancreatitis and intestinal obstruction. There is great variability in response to therapy. Whereas a long standing case may respond rapidly, a case of relatively short duration may prove resistant. These intractable cases may present vicissitudes of activity for great lengths of time. For example, we have seen cases of uncomplicated amebic colitis with histories of thirty years' duration. There may be great clinical improvement following therapy, with disappearance of amebas from the stools for a short period of time. Apparent improvement in the condition of the bowel is visualized by proctoscopy. The history frequently obtained is one of symptomatic remission for days, weeks or months following exhibition of one of the so-called amebicides. Then follows relapse, which persists until chemotherapy is reinstituted. Recurrent attacks may be relieved by repeated courses of the same drug. Some cases show no improvement whatever after trials of all the known antiamoebic drugs, but this is unusual. The pathologic picture varies from patient to patient and may vary in the same patient at different times from a few widely separated, slightly undermined ulcers to a sloughing, necrotizing, serpiginous generalized ulceration of the entire colon. Furthermore, granulomatous tumors of amebic origin may be encountered anywhere in the large intestine.¹ The factors underlying the change from one state to another in a single individual have not been determined but may

From the Southern Baptist Hospital.

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1. Silverman, D. N., and Leslie, A.: *Gastro-Enterology* 4:53 (Jan.) 1945.

12. Rome, H. P., and Fogel, R. H.: The Psycho-ematic Manifestations of Filariasis, *J. A. M. A.* 123:944 (Dec. 11) 1943.

be various. It is apparent that amebic colitis is a disease of protean nature, which may present either classic dysentery or vague symptoms, barely suggestive. As Faust² pointed out, cases with acute fulminating symptoms commonly occur in outlanders becoming infected in hyperendemic areas, where among the natives the incidence of infection is high and the incidence of clinical symptoms low. Cases of chronic nature, on the other hand, may be seen anywhere, as are cases manifesting acute exacerbation of the chronic state. The latter type may follow superinfection with a more virulent strain of ameba or with a strain of the dysentery bacillus. This may have been the circumstance in 2 of the cases being presented here.

REPORT OF CASES

CASE 1.—*Acute fulminating amebic colitis, ulceronecrotic form.*

History.—N. H. T., a white man aged 32, a salesman, was perfectly well until two weeks before admission to the hospital, when while at a hotel in Mississippi he developed abdominal cramps and diarrhea. He became progressively weaker, losing weight, passing fresh blood in his stools and having continuous fever up to 105 F.

Examination.—The patient was acutely ill, dehydrated and emaciated. There was diffuse abdominal tenderness, most pronounced in the left lower quadrant. The pulse rate was 100, the blood pressure 110 systolic and 76 diastolic. Proctoscopy revealed a diffusely necrotic, sloughing and ulcerated mucous membrane.

Urinalysis showed a trace of sugar on one examination. The erythrocyte count dropped from 4,300,000 to 2,200,000 per cubic millimeter, hemoglobin from 75 to 70 per cent. The leukocyte count was 8,750 per cubic millimeter on admission and 7,500 per cubic millimeter several days later, with a normal differential count. No malarial parasites were seen. The blood Wassermann test was negative. Agglutinations for typhoid, paratyphoid and dysentery organisms were negative. Scrapings obtained proctoscopically from the bowel wall were negative for amebas.

Course.—Six days after admission the patient passed a large tissue slough by rectum, reported as "necrotic tissue; normal histology destroyed; most probably sloughed mucosa with large amount of mucus."

The patient's temperature ranged up to 101.6 F., pulse to 120, and respirations between 30 and 35 per minute. Despite infusions and transfusions the downhill course was rapid, and the patient died ten days after admission.

Autopsy.—Gas, fluid and feces were found free in the peritoneal cavity. There were many small and large intestinal adhesions. There was a perforation of the cecum. An 18 cm. section of the posterior wall of the transverse colon was completely missing, presumably sloughed out, being replaced by loops of small bowel. The anatomic diagnosis was rupture of the ascending colon in the region of the cecum; complete sloughing of the wall of the transverse colon; intense ulceration of the whole colon suggestive of bacillary dysentery; acute inflammatory hepatitis; general peritonitis; acute toxic splenitis; acute toxic nephritis. Microscopic sections revealed the presence of amebas in all the layers throughout the entire colon. Culture from the bowel revealed the presence of a gram negative rod, which was agglutinated by known Flexner serum in dilutions up to 1:320.

CASE 2.—*Acute exacerbation of chronic amebic colitis, ulceronecrotic form.*

History.—R. D., a white woman aged 55 whose appendix had been removed twelve years before, had generalized abdominal pain and diarrhea with fever to 101.6 F. for about one year. The symptoms became aggravated one week before hospital admission.

Examination.—The patient was moderately obese, acutely ill, with diffuse abdominal tenderness. Proctoscopy revealed a necrotic, sloughing and ulcerated mucous membrane.

Hemoglobin was 62 per cent (9.7 Gm.). There were 4,000,000 erythrocytes per cubic millimeter. The leukocyte count was 8,750 per cubic millimeter, with normal differentiation. Agglutinations for typhoid, paratyphoid and dysentery organisms were negative. Serum proteins were 4.63 Gm. per hundred cubic centimeters. Chest x-ray and gastrointestinal x-ray studies showed no abnormality. Culture of bowel scrapings revealed the presence of *Bacterium dysenteriae* (Duval). Direct examination of the scrapings showed no amebas.

Course.—Despite infusions and transfusions, the patient became progressively worse and died six days after admission to the hospital.

Autopsy.—There was pronounced edema and reddening of the mucosa of the lower half of the ileum. The distal foot of the ileum showed occasional shallow ulceration. The ileocecal valve was almost completely occluded by much induration and fibrosis in a submucosal pathologic process, which extended from the large bowel side. The wall of the colon was decidedly thickened and, except for an occasional patch of red edematous mucosa, had been completely undermined by what grossly appeared to be a submucosal acute and chronic cellulitis that had been existing for a long time. The mucosal surface was lost only in the lowermost portion of the bowel (approximately the distal 6 inches), where the ulceration presented no typical gross character. The transverse and sigmoid mesocolon and the pericolic fat were thick, indurated and fibrosed.

Several microscopic sections through the gastrointestinal tract, particularly the colon, showed many large areas of necrosis of the mucosa with ulceration, the necrosis being of an undermining nature and tunneling under the mucosa for long distances. In the mucosa and submucosa—predominantly, but found in the muscularis as well as in the subserosa, there were innumerable trophozoite forms of *Ameba histolytica*. Some of these amebas showed ingested red blood cells. The inflammatory reaction present was mostly of subacute and chronic nature, there being considerable thickening of the intestinal wall. In this area some of the amebas were noted within the lumens of the small lymphatics and vascular spaces. Some of these vessels were thrombosed.

Heart blood culture gave no growth in ninety-six hours. Culture from the bowel wall yielded no pathogens. Direct scrapings showed no amebas or fungi.

CASE 3.—*Ulceronecrotic amebic colitis.*

History.—L. M. W., a white man aged 68, under radiotherapy for carcinoma of the bladder, was admitted to the hospital with a history of bloody diarrhea two months previously, at which time proctoscopy showed a condition described as "colitis or proctitis." During the three days preceding admission there were frequent soft black stools, nausea, weakness and one episode of vomiting.

Examination.—Aside from the appearance of chronic and acute illness, this was not remarkable.

Urinalysis was negative except for a trace of sugar and a few pus cells. There were 3,490,000 erythrocytes per cubic millimeter, with 60 per cent hemoglobin. There were 6,900 leukocytes per cubic millimeter, with normal differentiation.

Course.—The patient's temperature ranged up to 102.4 F. There were many soft stools containing blood. The course was progressively downhill, and death took place seven days after admission.

Autopsy.—The colon was adherent to the surrounding structures. There were many areas of necrosis but no area of complete perforation. The mucosa was destroyed by ulceration which involved the entire bowel including the cecum and the rectum. Microscopic examination showed degeneration of the mucosa with extension of the process to the submucosa, with edema and lymphoid and plasma cell infiltration and areas of necrosis in the submucosa. Many amebas were seen in the necrotic zones. The bladder showed a few areas of degenerating

2. Faust, E. C.: Some Modern Concepts of Amebiasis, Tr. & Stud., Coll. Physicians, Philadelphia 11: 101-113 (Dec.) 1943.

neoplastic cells, and the prostate showed a gland cell type of carcinoma (Broders' classification 2). Mucosal scrapings of the colon revealed the presence of motile amebas.

COMMENT

In 1937 Niño³ reported a case of "ulceronecrotic intestinal amebiasis with amebic tumor of the cecum and ascending colon" which prior to pathologic examination was thought to be tuberculosis. Death with peritonitis followed resection of the ascending colon. A second small mass was noted at the splenic flexure. It is felt that although the term "ulceronecrotic" has excellent descriptive qualities, it should preferably be reserved for the pathologic picture as seen in the 3 cases presented in this paper. In Niño's case and in other cases of similar nature amebas have been demonstrated in the granulation tissue comprising the granuloma and in the necrotic areas of amebic ulcerations. In cases 1 and 2 the trophozoites of *Endameba histolytica* were demonstrated in all layers of the colon, from mucosa to serosa. Figures 1 and 2 are sections made through two widely separated areas of the colon in case 2. Figure 3 is a high power magnification of an area of deep amebic penetration visible in figure 2. In the

other two developed deep ulcerations of the colon, which perforated. Death ensued in one case in forty-eight hours, in the other in about five days.

Similar observations were apparently not infrequent in the early days of American occupation of the Philippines and in Panama before 1915.

Cases 1 and 2 were complicated by the presence of dysentery organisms, Flexner in one case and Duval



Fig. 2.—Section through colon showing partial destruction of the mucous membrane and penetration of amebas into submucosa and muscularis, with associated inflammatory reaction.

in the other. It is possible, although not necessarily probable, that this combination of pathologic processes results in the diffuse ulcerating and necrotizing process which in one case caused a major slough of the transverse colon and in the other a large mucosal slough of the rectosigmoid. Faust² mentioned combined amebic and *Shigella* colitis without emphasizing any particular pathogenic summation.

Case 3 did not present the striking findings of cases 1 and 2, but the fact that the entire colonic mucosa was



Fig. 1.—Deep ulceration of colon, showing amebas in the crater and in the necrotic granulation tissue forming the base of the crater; complete destruction of mucous membrane.

third case there was demonstrable extension to the submucosa. There was nothing remarkable in the nature of the pathologic change, which after all was classic for the disease. The unusual feature, however, was the involvement of the entire colon in an ulceronecrotic process. In the past this extensive process has rarely been observed in this country. According to the following memorandum from Dr. E. C. Faust⁴ it has occurred in hyperendemic areas, such as China and the Philippines:

Three cases of fulminating dysentery, admitted to the medical wards of the Peking Union Medical Hospital, Peking, China, in October 1922, were of special interest because of the prostration of the patients on admission. Two were native policemen and one a shopkeeper. All were given a presumptive diagnosis of bacillary dysentery, but laboratory examination of the freshly passed stools proved them to have amebiasis and to be negative for *Shigella* organisms. Following specific diagnosis all of the patients were placed on yatren (i. e. chiniofon), which had been discovered in 1921 and was being given clinical trial. One of the patients responded well and was soon convalescing. The

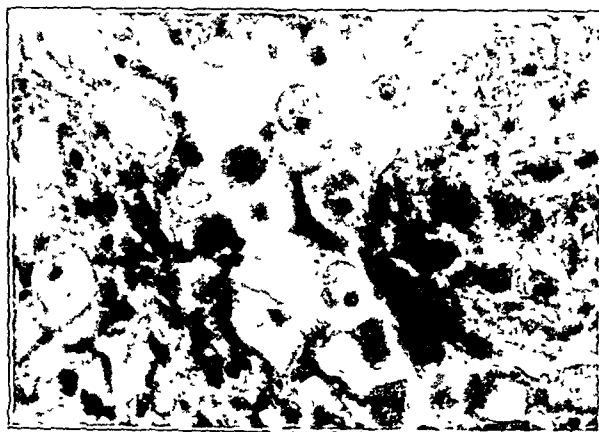


Fig. 3.—High power magnification of an area of figure 2 showing presence of many trophozoites of *Endameba histolytica*.

destroyed by the ulcerative process warrants its inclusion here.

Although cases of this type have been uncommon heretofore in the United States, an increase in incidence may be foreseen for two reasons:

1. The local dissemination of the disease.
2. The importation of virulent strains of amebas from the oriental and tropical war theaters.

3. Niño, F. L.: *Amebiasis intestinal ulceronecrotica y tumor amebiano del ciego y colon ascendente*. Novena reunion Soc. argent. de pat. reg. 2: 813-843, 1937.

4. Faust, E. C.: Personal communication to the authors

SUMMARY

In 3 cases of ulceronecrotic amebic colitis the unusual feature common to all of them was the extensive nature of the pathologic process, heretofore a rare finding in the United States, but apparently more common in hyperendemic areas, such as China and the Philippines.

ABSTRACT OF DISCUSSION

DR. WALTER L. PALMER, Chicago: The first essential in the diagnosis of amebiasis is to think of it and to look for the ameba. Amebiasis is present in all sections of the country. Drs. Silverman and Leslie report an incidence of 15 per cent in New Orleans. In various studies we have made in Chicago the incidence has been lower, from 2 to 4 to 6 per cent of carriers, and I think that figure compares quite well with most figures in Northern cities. After the epidemic of 1933 and 1934 in Chicago the incidence of amebiasis dropped rapidly and quickly returned to the level which had existed prior to the epidemic. Most severe cases of amebic colitis respond to emetine and chiniofon or vioform. The most essential point in the treatment of the chronic cases is the continuance of treatment. Often a patient is treated for a few weeks with temporary recovery and then the treatment is dropped and in the course of a few months the disease recurs. Not only do we have mixed infections with the dysentery organisms but also, occasionally, hemolytic cocci. Gonzalez and Vejar of Mexico City have recently reported a case of fulminating amebic dysentery, complicated by staphylococcal hepatitis, treated with penicillin with dramatic recovery. There are occasionally cases in which one finds amebas and sees a typical proctoscopic picture of non-specific ulcerative colitis in which the diarrhea and the proctoscopic findings persist after intensive amebicidal therapy and when amebas cannot be demonstrated, even on repeated examination, in the stool. None of our cases of this type have come to autopsy. The relationship between the two conditions is debatable. The same situation arises with regard to bacillary dysentery. There are many who think that all cases of non-specific ulcerative colitis are in fact instances of chronic bacillary dysentery in which the organism is, for some reason, not demonstrable.

DR. M. G. SPIESMAN, Chicago: I want to contribute briefly 2 cases of amebic granulomas of the rectum which were mistaken for carcinoma. A doctor aged 55 had frequency of stool and bleeding from the rectum. A diagnosis of carcinoma was made by a protologist, and he was advised to have the rectum resected. He was referred to me. I did a routine biopsy and a direct smear. The biopsy showed only inflammatory tissue, and the direct smear microscopically revealed amebic trophozoites. The diagnosis of amebic granuloma was made and we fortunately were able to cure this man's "carcinoma" with antiamebic treatment. Another case was sent to me with the tentative diagnosis of carcinoma of the rectum. A colostomy had already been performed. A routine biopsy showed inflammatory tissue, and a microscopic examination from a direct smear revealed amebic trophozoites. This man also was relieved of his suspected carcinoma with antiamebic treatment. These 2 cases emphasize that in every case of suspected carcinoma one must rule out amebic infection.

DR. DANIEL N. SILVERMAN, New Orleans: I have a different opinion as to the cause of chronic ulcerative colitis. After studying more than a thousand cases of acute and chronic bacillary dysentery over a period of years I believe that neither *Bacterium dysenteriae* nor *Endameba histolytica* has anything to do with the cause of chronic ulcerative colitis. Only in comparatively few instances, such as this, have we had sufficient thickening and narrowing of the bowel to give a similar radiologic picture. On the other hand the cultures have been negative in practically all of my cases of chronic ulcerative colitis. So I, like others, am on the fence as to the etiology of chronic ulcerative colitis.

THE GENERAL PRACTITIONER AND THE RETURNING VETERAN

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MEDICAL CORPS, ARMY OF THE UNITED STATES

Adequate and specific medical care for the returning veteran is now a need in every American community, especially in smaller or suburban areas. It must be recognized as an increasing problem, for the medical profession will be faced with it more and more in the next few years. Professional interest must be kindled, because the major solution should be inspired and implemented by personal activity of the general physician, not only to provide the best health protection for our soldiers who will be returning to each community with their scars of physical and mental wounds, but also to insure the continuing prestige of the general practitioner. If the members of our recognized medical societies are not ready to carry on with this challenge, they will find themselves shunted to one side by some group who will appear to meet it. As there are psychiatric aspects to be considered, some suggestions which might be helpful in general practice are herewith offered.

The psychiatrist is expected to be more sensitive to and aware of, and perhaps less ill at ease with, the problem of psychiatric returnees. But although they may constitute one of the largest groups in the medical problem, there will be enough neurologic, surgical, orthopedic and other types of cases to discourage any feeling that the whole job should be shrugged off on the doorstep of some ladies' aid committee which may act with professional assistance no greater than lay or nonmedically trained psychologists or social workers. The deciding factor which will may unwittingly jockey the medical group away from meeting the situation and form the wedge of an increasing lay supervision of community health needs can be the inertia of the local general practitioner in taking up the challenge.

In many communities there are groups of earnest, intelligent and well intentioned citizens who are, or will soon be, taking steps to anticipate and prepare ways and means to meet the problem of the returning veterans. In almost every community this will likely result in the formation of a civilian council, which will make use of the professional services of lay workers from the staffs of social and welfare organizations. Perhaps financial aid to furnish salaries for administrative, secretarial and clerical help will be offered, provided by legislation or solicited from state or federal grants. If this comes to pass, as seems indicated by recent events, it is important that it be developed with and by the organized medical group, especially in the average nonmetropolitan community. In order to secure the best results and for the most able administration, the medical problem had best be kept well in the hands of the community's physicians through their group corporate body, the county medical society. And this can emphasize the potentially fine job which can be done by physicians in their own regular practice for the bulk of those veterans needing medical and psychiatric attention. The strain on veterans' facilities plus the

preferences of some veterans to be treated in their own community by physicians of their own selection may make treatment in government hospitals one of choice only for those cases demanding a specialization of treatment, equipment and appliances or a duration of hospitalization incompatible with office or local practice.

Perhaps the greatest deterrent for the average physician in his willing and spontaneous assumption of this work may be an inordinate sense of inadequacy and a resulting hesitancy in approaching the psychiatric problems which will make up a large number of the cases encountered. Before making any definite suggestions as to a general picture of development, certain points concerning the general practitioner's ability in the field of mental and emotional illness should be considered.

The majority of clinical psychiatrists will agree that they feel more kindred to the general practitioner than to any other one group of their medical brethren. The well informed, thinking physician who possesses a broad experience in general practice has found that 60 per cent or more of illness encountered in his office practice is of psychogenic origin without any somatic basis. The problems and procedures of handling these patients are therefore familiar to the general practitioner, and he is well situated to handle adequately the majority of psychiatric problems he may encounter, and for recognizing and directing to the right places those few which will need the attention and care of specialists.

It is interesting to look at the obverse of that coin. The psychiatrist feels more at home with, and sees his professional problems better understood by, the general practitioner than by the surgeon or the otolaryngologist, albeit the understanding perhaps is somewhat naive and more intuitive than conscious. Why, then, is it that the general practitioner often does not feel professionally more at ease with the psychiatrist and the better enabled to tackle such patients? Yet he will do minor and even major surgery without a qualm, attack ophthalmologic conditions and laryngeal or ear problems in his stride, but if almost any chronic and familiar occupant of his waiting room chair is labeled "psychoneurotic" he at once will begin to look a little askance and feel somewhat hesitant or less assured in this person's presence.

The answer is, of course, that most physicians do know their psychiatry and their psychoneurotic patients intuitively rather than in the light of a conscious, disciplined knowledge; and while they work with hands and material technics on surgical patients and see immediate results, with the psychoneurotic they are constrained to work chiefly with intelligence, thoughtful considered planning and personal direction. The results are often so slow in developing and so full of seemingly contradictory changes that the physician may feel he is not quite sure whether it was luck or good management that did the trick.

But every general practitioner in an ordinary non-metropolitan community has as an inherent part of his medical armamentarium the most important requirement, other than skill or technical knowledge, needed in the psychiatric treatment of a patient. This is the simple but detailed and comprehensive knowledge about the patient, his family and background, his environment, his ambitions and hopes and the threats impinging against those. This is the contact which the practitioner in a large city so inexorably loses; that which the psychiatrist with strangers for patients must so painstakingly delve for and evaluate.

Recognizing then these natural assets, this intuitive knowledge of how to handle patients which results from

real experience, they can be developed by some means of orientation which might help in formalizing such knowledge to the end that the physician may acquire more confidence and assurance in its use.

The basic premise on which any successful psychiatric approach must rest is the conviction that people, and particularly the individual at hand, are inherently normal and good, and that any deviation from this in behavior or conscious motives and intent is due to illness—physical or psychologic, which in the great majority of cases can be cured.

The man who is attempting to correct a psychologic illness cannot believe that the sufferer is incurable without thereby losing his chance to effect a cure. He should not invoke the folklore of character defect, heredity, natural perversity or some other such pious self excuse without being ethically bound to turn over the case to some one else. To make these statements is not to put the cart before the horse or to indulge in wishful thinking. It is merely a recognition of the fact that all the witch burning in the whole of the fourteenth and fifteenth centuries never led to the finding of a cure for hysteria, while earnest, sympathetic, intelligent application of medical men as divergent in theory and technic as Pinel, Freud or Austen Riggs has resulted in an ever more favorable prognosis and outcome for the psychoneuroses.

People act the way they do because they believe it is the only way of acting that will assure them happiness. And except in the case of insanity or mental deficiency or organic mental disease all that is needed to bring about psychologic balance and reintegration is to find the reasons for their behavior and intentions and slowly, let it be repeated with emphasis, slowly, to reeducate them—not by sudden or immediate expostulation and haranguing nor by dumping on them our reasons for considering their actions or ideas unwise: reeducation is achieved by little hints here, and demonstrations and little advances there, until they see the light and accept those reasons deeply as their very own, and frequently much of their new learning must come from their impressions stimulated by our own actions and our emotional attitudes toward them rather than by our actual words.

Psychoneurosis is merely emotional illness deriving from ignorance, false experiences or fear, occurring in a person with an essentially normal mind and nervous system but disturbing the integration of psychologic forces that lead to adaptive behavior. It is reasonable to state that there are few if any psychoneurotic persons who cannot be aided in regaining normal mental health by a physician who is friendly, observant, skilful in understanding and influencing, and practical in manipulating the environment as needed.

So called neurotic or normal is merely a matter of position along a scale of security and self confidence, knowledge and belief. Each of us has the potentiality of developing a psychoneurosis if we are only subjected to a sufficiently intense or chronic strain of ignorance, or of false and threatening experiences, or of fear.

Fortunately the great bulk of psychiatric persons who are and will be returning from the armed forces represent this illness of psychoneurosis, and the problem of mental disease, or insanity, is relatively small.

Of a million men or women there are a certain number who break down with real mental disease. The same percentage ratio holds for men in the army, perhaps increased to some extent, but not too significantly.

A large majority of the mental illness breaking out in men of the armed forces is of an acute type which tends to recover rapidly, especially when the patient is returned to civilian life. Such problems are the working area for the specialist in psychiatry.

The present day treatments available for frank mental disease, even of the schizophrenic, the manic depressive or involutional type, and the problems inherent in home care, will warrant committing almost all such cases to institutional treatment.

On the other hand, it will be found that, with a few exceptions, the majority of neurotic patients can be treated successfully by the physician in general practice if he is practical in being sympathetic and understanding, especially if his knowledge of psychiatric concepts is improved and formalized by even a minimum of reading in today's psychiatric literature.

With this in mind, at the end of this article is appended a list of reading that is authoritative and comprehensive, which should be of real practical value in the approach to the understanding and handling of psychoneurotic patients but which is not too technical, and which is not really geared for the specialized handling of the more severe cases.

A few exceptions should be noted in the matter of psychoneurotic conditions that would benefit by specialized attention—the cases of serious, major complicated type or degree, which are as follows:

1. The obsessive-compulsive cases, the serious reactive depressions or other, perhaps severe hysterical cases, which we realize are more than the general physician can hope to cope with. Most of these will be no different than ones of similar type seen before in pre-war civilians.

2. The particular cases of so-called battle psychoneurosis, or operational fatigue—the combat or operationally induced neurotic states—which can so easily and quickly be cured by the specific psychiatric technics developed in this war.

One interesting case account was recently published in *News Week*:

Boredom.—Far from New Guinea, where he killed 50 Japs and was decorated twice, ex-paratrooper of Passaic N. J., was bored. He told police last week it was the awful quiet which made him rob a New Jersey taxi driver, go to New York and then kidnap a lawyer to drive him back to Jersey City.

He may have been suffering from operational fatigue. There are two necessary facts present: 1. He was overseas in combat. 2. His behavior is now abnormal. If it could be ascertained that he showed no criminal tendencies before induction, the diagnosis would almost be made—and if in addition it was found that he suffered from insomnia, nightmares or a nervous stomach or that he was jittery or anxious, he could be sent off to the nearest rehabilitation center, where experience has shown that it is possible to restore his prewar personality or a reasonable facsimile thereof.

A young lieutenant was referred to one of us for evaluation pending a court martial for being drunk and disorderly in a nearby town. The first thing noticeable about him as he entered the office was the flushed, rather expressionless, tired face, with deep forehead furrows and widened palpebral fissures—a facies typical of many of the men who are suffering anxiety and chronic nervous tension. He admitted that he had just had another court martial some few weeks before for being drunk and out of uniform, and that this time he expected to be discharged in disgrace. He had been drinking

pretty heavily ever since he had got back to the States seven months before. But he had not been a heavy or unusual drinker before then. His tour of duty was in the South Pacific area, where he had been a navigator on a heavy bomber and had completed twenty-six missions—or strikes as they are called in that area. On the twenty-fourth mission the plane had been forced to make a water landing, but the crew had all been saved after eighteen hours in their rubber life boats. He went to some trouble to explain that this water landing was not his fault and why it wasn't—offered the statement that no one of the crew except the pilot realized that. This officer had not been sleeping well. He had been having nightmares, particularly of combat scenes. He had noticed that his concentration was failing and his appetite had fallen off, although he had suffered no actual nausea or vomiting. He had startle reactions at loud or sudden noises and was restless most of the time. He had been feeling tense and on edge in planes since getting back, especially when they were taking off or landing. It is obvious why all ideas of court martial were quietly retired and why he was sent to a rehabilitation center for treatment.

A third case, excerpts of which are quoted from a report by Lieut. Col. Roy R. Grinker on a case of depression, with anxiety of one year's duration, shows the amazing results attainable by specialized treatment in these operational fatigue cases, in that it was relieved in one week by pentothal sodium narcosynthesis and brief psychotherapy:

A captain aged 25 presented an expressionless face; his muscles were quite rigid, indicating a great deal of tension. He did not volunteer much information and never smiled, and his speech was retarded. The patient had been a flight leader in a pursuit squadron and had fought successfully until about his twenty-fifth mission, when a friend who had been flying on his wing went up in flames. However, he stated that he continued fighting and successfully completed his tour of duty, although feeling bad and depressed. He returned to the United States, refusing the chance of remaining as commanding officer of a squadron. He had been reassigned to a job in the United States which he liked very much and wanted to keep, but his depression continued and was accompanied by severe startle reactions. When any one came into his room and made a sudden noise or turned on the light he would jump out of bed with great anxiety. In addition to the depression and its concomitants there was considerable insomnia with battle dreams, which repeated some of the very severe traumatic incidents of his combat experiences. However, he maintained fairly good control of himself and continued to fly. He attempted to decrease the anxiety and depression by drinking, but the only result was an increase in anxiety. He stated that he tried hard to forget his experiences but found it impossible.

In his first interview Lieutenant Colonel Grinker submitted the patient to a pentothal abreaction of the episode in which his friend and plane went up in flames. This treatment was followed by a discussion of the episode and reassurance against personal guilt feelings after the patient had become conscious again. Clinical notes indicate his improvement:

The next morning the patient entered the interviewing room and stated "I feel like a load has been lifted from my mind, like a great relief. I slept well last night, awakened once and went right to sleep again. I had no dream. This morning I feel good."

On the third day, "The next day the patient entered the interview smiling and stated frankly 'I must say I haven't felt so good as I feel now for a long time. I slept well and had no dreams.' He felt as if he could carry on."

To make a long story short, by the end of the week the patient felt that the load had been lifted from him completely. He wanted to go back to duty and felt capable of carrying on and in Grinker's opinion had been brought to a satisfactory point at which to terminate treatment.

"Therefore we did not treat him any further but returned him to duty." Six months later, reexamination revealed that he was entirely well and competently performing his flying duties.

The last 2 cases were both from air force casualties. But with a change in the props (a stage setting word, not air force lingo) they might have come from any combat service or area. Muscle tension, fidgetiness and restlessness, startle reactions, insomnia and nightmares, irritability, difficulty in concentrating, physical symptoms of emotional stress—particularly functional stomach trouble—these are the signs that appear.

But not everybody with so-called operational fatigue has just this picture or has been in combat. There is one other type to consider, the soldier who has been sent overseas on duty or to places where he has been exposed to long stretches of unimaginable loneliness or monotony. This has been seen in crew members of bombers who flew only on submarine patrol in the Caribbean, in aviation engineers who had been stationed for months in some inactive, isolated area of the Aleutians, and so many men have returned from Ascension Island with this condition that some psychiatrist dubbed it "Ascension Island neurosis." It lacks the startle reactions and the nightmares of the other type of operational fatigue and has more hypochondriacal and neurasthenic elements to it.

These examples point out certain leads of importance. When confronted with a veteran, find out reasonably soon what he was a veteran of. As soon as he says he was overseas he is a little more suspicious of a specific war-induced neurosis; he is more than suspicious if he was in combat or if he was assigned for any length of time to an exceptionally lonely, inactive place. On the other hand, if he never got close enough to either the Atlantic or the Pacific oceans even to spit out of the United States—if his neurosis was well developed before he was inducted and his behavior has shown no especial difference either before or after, he was sick before he came into the Army and he is still sick. But with this difference: The community will now be judging the medical group on the basis of whether anything is done for this man's illness. And if physicians aren't active in treating him, others will be wanting to try.

Psychiatric professional interest would tend to lead to emphasizing the importance of the mental and emotional medical needs of the soldiers who are and will be returning. Statistics, however, will show that this is not overemphasis. And despite the bulk of the psychiatric cases, numerically there also will be many veterans who will be in need solely of strictly organic medicine.

Many of the persons who will come for treatment will have had hospital records of study, diagnosis and treatment in the Army, and there should be instances in which these records would be of great value to the physician in work with the soldier. An army regulation¹ now authorizes the Veterans Administration to release to physicians a copy of these records provided the request is accompanied by a signed statement of

approval from the patients. It is imperative that this aid be not overlooked.

Not all men returning will be in need of any professional help. We must remember that the majority of men will meet the issues involved in adjusting to new home town conditions in an eager stride. The same common sense, courage, imagination and spirit of growth that enabled each one of them to become a fighting soldier will be used in picking up the life channels they desire at home. For those less fortunate or those needing special help, let it be provided by the man they can trust and depend on—the home town doctor.

It may be stated unequivocally that any intelligent general practitioner who uses general medical common sense, combined with a reasonable degree of acceptance of known established psychiatric principles and orientation, can successfully apply these principles of treatment in the majority of cases.

Finally, one simple suggestion may be considered feasible of development in most communities: A committee should be formed in each county medical society with a title somewhat along the lines of "Committee for Study of Veterans' Health Problems." This committee should be assigned two functions: (1) to collect information, to contact state and federal bureaus, to prepare plans and procedures, and to act as a central bureau for all physicians, and (2) to offer its services as an integral part of the veterans' council of each town, under the supervision and direction of that council's committee on physical and mental health problems, and to act as the physicians' representative on that council in its meetings and discussion of medical matters.

The fundamental contribution will be in the personal practice of each physician. He is not only the unit by which this work may be initiated but also the keystone to maintain it.

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Roger Bacon.—Embedded in the superstitions of the thirteenth century, any man who knew gunpowder, handled the furnaces, alembics and other instruments of an alchemical "laboratory," prophesied "horseless carriages" and ships moved without sails or oars could easily stand accused of practicing "black arts" (i. e. magic) and writing heresy punishable by imprisonment. Such was the fate of Roger Bacon, the English born Franciscan of Oxford. Yet his "Opus Majus" ("Great Work"), ordered by and delivered to Pope Clement IV in 1267 but not published for five hundred years, reveals clearly that this learned and traveled friar, pupil of the great Bishop of Lincoln, Robert Grosseteste, dealt with "magic," not to practice but to expose "the mad acts of magicians" by the true test of "experimental science." He was no sorcerer who looked on mathematics as "the alphabet of all philosophy" and studied optics for the "sweetness" and "nobility" of "this very beautiful science."—*The Autobiography of Science*, edited by Forest Ray Moulton and Justus J. Schifferes, New York, Doubleday, Doran & Co., Inc., 1945.

1. Administration of Hospitals, General Provisions, Army Regulations 40 590, United States War Department, Washington, D. C., Government Printing Office, Aug. 29, 1944, paragraph 2b, subparagraph (a).

A STUDY OF DIARRHEA OCCURRING AT ARMY AIR FORCE HEADQUARTERS, CALCUTTA, INDIA

CAPTAIN EDGAR A. LAWRENCE

Flight Surgeon

AIR TRANSPORT COMMAND, ARMY OF THE UNITED STATES
AND

CAPTAIN ROBERT E. BENNETT

Flight Surgeon

AIR SERVICE COMMAND, ARMY OF THE UNITED STATES

Outbreaks of diarrhea are not uncommon in army camps in the United States. They are usually of short duration and easily controlled. In India, throughout the entire year cases of diarrhea are seen in all army installations. During the monsoon season they tend to increase in number, become far more severe, are of longer duration and often show a much higher incidence of dysentery. Whereas in the United States outbreaks of diarrhea are ordinarily treated by routine army methods, it cannot be overemphasized that in India and other areas of the Far East every case of diarrhea must not only be looked on with grave suspicion but examined individually with the most minute care. In India, diarrhea occurring during the monsoon season, which in this locality (southern Bengal) lasts approximately from June 20 to September 20, is often referred to as "monsoon" diarrhea; a poor term, since it only tends to obscure the true etiology of the disease.

In this study we shall attempt to show the conditions which brought about a high incidence of amebic and bacillary dysentery during a twenty-three day monsoon period at this air base as well as the measures employed to keep the incidence of these diseases at a minimum.

The air base is situated on the banks of the Hooghly River, approximately 15 miles from the center of Calcutta. It is enclosed on three sides by densely populated and disease ridden Indian villages. Estimates indicate approximately 14,000 persons within an area of a half square mile, most of whom live on or near the waterfront in the immediate environs of the base. The village streets and fields are littered with all kinds of debris. Decaying garbage, human and animal excreta and occasional foul smelling carcasses of dogs and bullocks left lying for days at a time are the usual conditions found. Sanitation in its most elemental stage has made no impression on the populace. Obviously conditions of that kind are extremely conducive to the breeding of flies in and around the base, domestic (*Musca domestica*) and bottle flies (*Chrysomya megacephala*) being the common varieties.

From Jan 1, 1914 to the end of June 1944, 569 soldiers reported at sick call with the complaint of diarrhea. During July there were 205 cases, or approximately double the incidence of any previous month. Such an increase is not to be construed as an epidemic but rather, we believe, a result of the rainy season and natural increase in fly breeding.

During the period from July 11 to August 2 all cases reporting at sick call with the complaint of diarrhea were carefully studied and the following data obtained: (1) history and physical examination relative to the attack of diarrhea; (2) length of tropical service; (3) stool examinations by both fresh saline and iodine preparations and concentration methods where indicated; (4) cultures of fecal specimens obtained by rectal swabs and planted on inhibitive

media, bacteriologically traced as to type specificity of dysentery organisms by the Subcommittee on Dysentery, headed by Dr. Carl Ten Broeck.¹

DISTRIBUTION

During this twenty-three day period, 198 consecutive cases of diarrhea were studied. The causes were as presented in table 1, from which it can be readily seen that 104 cases (52.5 per cent) exhibited either amebic or bacillary dysentery or both. Most forms of non-pathogenic protozoa were seen either alone, together or accompanying one or other forms of dysentery. Stools that were negative or showed nonpathogenic flagellates microscopically were not followed further as to etiology but may well have been due either to simple dietary indiscretion, a change in the types of food ingested in India or one of the *Salmonella* group of organisms, which not uncommonly present dysenteric symptoms often indistinguishable from those of bacillary or amebic dysentery. *Endolimax nana* was seen in heavy numbers in 37 cases not presenting amebic or bacillary dysentery,

TABLE 1.—Distribution of Cases

Parasite or Bacteria	No of Cases	Percentage of Total
<i>Endameba histolytica</i>	31*	15.6
Bacillary dysentery	66	33.3
Both <i>Endameba histolytica</i> and bacillary dysentery	7	3.5
<i>Giardia lamblia</i>	4	2.0
Nonpathogenic protozoa	47	23.7
<i>E. nana</i> , <i>C.</i>	41	20.7
Negative microscopically	41	20.7
Total cases examined	198	

* Two recurrent cases

TABLE 2.—Symptoms and Incidence

Disease	Total Cases	Abdominal Pain	Nausea	Vomiting	Weakness	Tenesmus	Fever
Bacillary dysentery	66	26	29	12	21	10	21
Amebic dysentery	31	1	10	7	10	5	10
Both bacillary and amebic	7	4	5	1	4	2	5
	104	31	44	20	35	17	36

a point of interest in view of the fact that in only 3 cases were they seen in a group of 100 supposedly normal individuals. It would be foolhardy to suggest, but conceivable, that in certain cases in which they are seen in large numbers (occasionally as high as 30 to 40 per high power field) and where no other parasites are found they may possibly be at least a contributing factor to the diarrhea.

SYMPTOMS

The onset of symptoms was sudden in 70 per cent of the bacillary dysentery cases, in 48 per cent of the amebic dysenteries and in 57 per cent of all other cases. The outstanding symptoms and incidence of each are given in table 2.

It may seem that tenesmus was the only outstanding symptom peculiar, but by no means entirely, to bacillary dysentery. Fever occurred approximately in only 50 per cent of the amebic and bacillary cases, and therefore it is important to point out the practice, so often seen in Army medical personnel, of taking temperatures to determine the possibility of dysentery is of very limited value. We were frankly unable to

¹ Subcommittee on Dysentery, Army Epidemiological Board, Preventive Medicine Service, Office of the Surgeon General

decide from the symptoms what type of disease we were likely to find under the microscope. The only clue to bacillary dysentery, apart from tenesmus, was the frequency of bowel movements, for whereas the average number of stools passed were from 4 to 7 per day in the unclassified diarrheas and a similar number per day in cases of amebiasis, the average in bacillary dysentery was from 8 to 20. In this series nausea was quite an outstanding feature in all types of diarrheas, and vomiting was not unusual. The climate and chloride loss from vomiting and perspiring may well account, apart from the disease itself, for the high incidence of weakness. No frank cases of shock were noted.

LENGTH OF TROPICAL SERVICE

Soldiers arriving overseas during the monsoons were apparently just as prone to intestinal disease as those with long terms of service. There was no evidence to suggest that any resistance or immunity was acquired from prolonged tropical service.

LABORATORY FINDINGS

The routine examination of stools in all cases of diarrhea cannot be overemphasized; as has been shown, in this series neither the symptoms nor the presence of fever gives one a positive clue to diagnosis.

In this study, stools were passed in an adjoining latrine and examined immediately in a warm state. The whole stool was mixed and a fresh saline and a 1 per cent iodine preparation made. In cases of doubt, and in the studies of carriers, a portion of the specimen was concentrated and examined for cysts. The characteristics of the gross stool and microscopic picture conformed to the classic description. In those with bacillary dysentery the stool was of a bloody mucous consistency, devoid of fecal material in 74 per cent. In those presenting amebiasis 32 per cent were of a watery, bloody fecal consistency, 29 per cent were watery and fecal but lacking in gross blood and some showed streaks of mucus and blood surrounding a semi-solid stool. In this series we were unable to demonstrate gross blood in any case that did not prove to be dysenteric. Microscopically the diagnosis of bacillary dysentery was made in the presence of numbers of red and white cells and large macrophages and naturally absence of pathologic protozoa. The diagnosis of giardiasis and amebiasis was made in the presence of the active trophozoitic or encysted forms.

Because of the interest and cooperation of the Subcommittee on Dysentery,¹ rectal swabs were taken and cultured from all cases of diarrhea. Their report will, no doubt, appear later, but it is sufficient to say at present that, although only one culture was obtained during the acute phase of the disease, 25 (37.8 per cent) of the 66 cases of bacillary dysentery were positive for one or the other strains of *Shigella* organisms. No *Shiga* type organisms were isolated.

TREATMENT

All cases of dysentery were immediately isolated and evacuated to a nearby general hospital, where they received recognized routine therapy. It is of note that no deaths were recorded nor were any complications reported.

SOURCE OF INFECTION

The water supply, naturally, came under grave suspicion; however, weekly samples of both drinking and ice water were bacteriologically tested and found to be potable. Water sediments were examined by Major

G. J. Dammin¹ and found to be negative for amebic cysts. Purification of water is accomplished by a process of flocculation and filtration and, finally, chlorination.

Another obvious source of infection for which, at present, there is no remedy, is the local hotels, restaurants, bars and other such establishments. No check is made of the food handlers employed in such places, nor is there adequate fly control. Many of the Army personnel, particularly transients, and those on leave, live at these hotels and consequently are openly exposed.

In an effort to determine the degree of fly hazard, as far as the transmission of dysentery was concerned, 25 of them were caught in various mess halls and cultured on inhibitive mediums. Live bottle and domestic flies were picked up from screens by forceps and allowed to crawl over a small area of the plate. Twenty-two, or 88 per cent, showed cultural and morphologic characteristics of coliform colonies. Owing to lack of facilities, no further bacteriologic study was made to trace further either the group or the genus. The fact, however, that such a high percentage showed gram negative coli group organisms is presumptive evidence of transmission. It was unfortunate also that owing to lack of cultural mediums and a dissecting microscope no study could be made for amebic cysts that might have been present in the contents of the flies' intestines. In view of the surrounding breeding grounds and access to human excrement it is more than possible that these flies harbored encysted forms of *Endameba histolytica*. In further support of such an assumption, the fact that the incidence of amebiasis was reduced by the intensification of fly control measures is, at least, partial proof on deductive grounds.

CARRIER STATE

The extent to which food handlers and other human beings not connected with the serving of food play a major part in the spread of infection, as far as amebiasis is concerned, is a question. As regards bacillary dysentery, though, there is no question that man is a definite reservoir—flies playing purely a passive role in its transmission. It should be stated that all food served at the

TABLE 3—Carriers

Men Examined	Bacillary Dysentery			Amebic Dysentery		
	Number Cultured	Number Positive	Percentage Positive	Number Examined	Number Positive	Percentage Positive
Indian employees	148	5	3.3	289	22	7.61
White soldiers	116	12	10.3	100	3	3.0

base is thoroughly cooked prior to serving, no raw vegetables are prepared, and every precaution is taken to prevent manual handling of food by Indian bearers. Bearers' nails are examined and pared, uniforms are kept clean and adequate facilities for hand washing are provided.

Although the numbers of individuals in table 3 are small they are sufficiently representative of a cross section of the total number of troops at the base. As can be seen in the cases from whom rectal cultures were made, the greater percentage of positives occurred in the Army personnel and not in the native food or water handlers as might be suspected.

The number of contact carriers of amebiasis in 100 unselected cases was surprisingly low in the Army personnel and only somewhat higher in native food handlers.

CONTROL MEASURES AND RESULTS

Flies appeared to be the main vectors in passive transmission. Local British government authorities were notified, and stringent sanitary measures in the surrounding area of the base were carried out. As far as the base itself was concerned, sanitation teams made up of Indians under the supervision of noncommissioned officers were organized. Latrines, buildings, tent areas and all open air breeding places were sprayed with *Dichlorodiphenyl-trichloroethane* (DDT) or some form of pyrethrum spray or aerosol bomb. Greater numbers of fly traps of the box conical type were placed at advantageous intervals around all mess halls and possible breeding places and at garbage collecting stations. Refuse cans were checked for tightly fitting lids. All mess hall doors and windows were repeatedly examined and the screening and woodwork repaired where necessary. The control of flies by these measures was both dramatic and gratifying.

As a means of eradicating, as far as possible, amebic carriers in Indian food handlers and in view of the difficulties of individual therapy, mass treatment was initiated. Each Indian working in or around mess halls received a daily dose of a half grain (0.032 Gm.) of carbarsone for a period of ten days. Repeated stool examinations are being done on all food handlers and a careful stool examination done on all new applicants.

The command and Indian latrines were examined for cleanliness and maintenance was enforced. Notices with regard to hand washing were posted.

Where possible, in the command, all carriers of either amebic or bacillary dysentery were segregated and treated. Facilities, however, were such that not all soldiers could be examined. There is little doubt that our own troops are acting as a reservoir of bacillary and, to a lesser extent, of amebic dysentery.

As a result of these control measures and prompt isolation of dysentery cases there has already been a definite and appreciable drop in the incidence of diarrhea and dysentery. In a three week period from August 2 to August 23 only 92 cases reported at sick call with the complaint of diarrhea and of these there were 21 (22.8 per cent) cases of bacillary dysentery and 11 (11.9 per cent) cases of amebiasis. Though the total cases of diarrhea were lower, there was only a small drop in the numbers of dysentery cases. This drop cannot be explained on the grounds of periodicity in fly breeding, for flies of all types continue to be prevalent in other areas surrounding Calcutta.

CONCLUSIONS AND SUMMARY

1. All cases of diarrhea occurring in the tropics must be approached with grave suspicion and utmost concern. Employment of the routine gross and microscopic stool examination cannot be overemphasized. The fact that so many untreated early cases of amebic and bacillary dysentery tend to become chronic quickly, often leading to lifelong invalidism, should in itself be an indication and reason enough for thorough diagnosis and early institution of adequate therapy.

2. The term "monsoon" diarrhea is misleading and only tends to obscure the true etiology of the disease.

3. The high incidence (52.5 per cent) of amebic and bacillary dysentery is shown in a series of 198 consecutive cases of diarrhea occurring during the monsoon season.

4. The often used Army doctor's method of differential diagnosis between simple diarrhea and dysentery

by checking the temperature and, if normal, administering one of the sulfonamide drugs for a period of twenty-four to forty-eight hours is to be deplored. As has been shown in this series, the temperature in dysentery is often normal and the symptoms are not too far removed from those of unclassified or nonspecific diarrheas. Not only does the use of the sulfonamide drugs for so short a period, when they are effective in controlling the disease to some extent, lull the physician into a sense of false security but they also can be considered no more than palliative if dysentery is actually present.

5. There was a high incidence of bacillary dysentery carriers (10.3 per cent) in our own troops.

6. All known carriers in Army personnel should be promptly treated and segregated.

7. If Indian food handlers, by virtue of military necessity, are employed, repeated stool examinations should be made.

8. In India and throughout the Far East, sanitary discipline and every method at our disposal for the control of flies must be instituted and vigilantly maintained.

MODE OF PRODUCTION OF
PULMONARY EMBOLI

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AND

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Pulmonary embolism secondary to venous thrombosis, especially in the deep veins of the legs, is a disorder that has been feared by physicians for centuries. Since Valsalva's¹ classic experiment in 1740 in which he described the effects on man of holding the breath in inspiration and making an expiratory effort with the glottis closed, there have been numerous studies on venous pressure. However, it was not until the method of Moritz and Tabora² was introduced in 1910 that comparable measurements of the venous pressure were recorded. They and subsequent investigators noted a great increase in venous pressure in subjects performing the Valsalva experiment but on review of this literature we find that their observations have been chiefly on the veins of the arm: the physiologist Méan³ did observe a great increase in the volume of the peripheral veins in both the arms and the legs.

The recent work of Bürger⁴ and of Meyer and Middleton⁵ has emphasized the great danger to persons with heart disease of even a modified Valsalva experience (acts of defecation, parturition, coition, lifting, straining at work or in sports) and they even attributed "bedpan" deaths to heart failure from sudden changes in venous pressure and total hemodynamics. The emphasis of this type of vascular strain has been placed on the heart, but we believe that sudden and often fatal pulmonary embolus is a more common result of such acts of straining by those confined to bed by illness or

From the Massachusetts General Hospital.

1. Valsalva, Antonius Maria: Opera, Venice, T. Pitteri, 1740.
2. Moritz, F., and von Tabora, D.: Ueber eine Methode beim Menschen den Druck in oberflächlichen Venen exakt zu bestimmen, *Deutsches Arch. f. klin. Med.* 98: 475, 1910.

3. Méan, Henri: Influence de divers agents, notamment de l'acide carbonique, sur la tonicité des veines périphériques de l'homme, *Arch. internat. de physiol.* 40: 429 (March) 1935.

4. Bürger, M.: Kreislaufunktionsprüfungen im Sport, *Med. Welt* 4: 1639 (Nov. 15) 1930.

5. Meyer, O. O., and Middleton, W. S.: The Influence of Respiration on Venous Pressure, *J. Clin. Investigation* 8: 1 (Dec) 1929.

operation. Indeed the single case description by Meyer and Middleton is classic for pulmonary infarction, but they failed to mention this possibility. The dramatic plugging of the pulmonary arteries by clots released from the leg veins after straining on a bedpan has been witnessed probably by nurses more often than doctors; in our own hospital this "Haley sign" of pulmonary infarction has been attributed for years to an astute head nurse.

In our determinations of venous pressure in the arm and the leg it will be noted that, like previous observers, we found a rise of several centimeters in the arm vein pressure during the forced expiratory effort with the glottis closed. The difference between this reading and the reading in the leg when recumbent is probably due to the fact that the venous reservoir drained by the superior vena cava is much smaller and more subject to pressure by muscles and other structures. However, when sitting in the bedpan position there is a great rise in normal venous pressure in the legs (hydrostatic effect), but this in turn shows a greater increase on the forced expiratory effort.

Our explanation then for this mode of release of mural thrombi that so often lie in the leg veins is in the observed facts that venous pressure and volume in the leg rise sharply during a Valsalva experiment. Associated with this rise in venous pressure, the return of blood to the heart is temporarily impeded so that the peripheral veins become distended with blood, which may loosen an insecurely attached mural thrombus. With the drop in venous pressure during the next inspiration the dammed venous blood rapidly empties from the peripheral veins, washing with it any loosely

Venous Pressure in Arms and Legs During Valsalva Experiment

	Recumbent						Sitting Up in Bed			
	Arm			Leg			in Bed Leg			
	R.R.L.	E	M.C.	R.R.L.	E	M.C.	R	R	L	M.C.
Normal breathing....	95	105	85	90	104	108	130	145	285	325
Full inspiration	380		350		210		205		410	450
Full expiration.....	325		330		197		170		405	425
Midposition	250		330		175		180		390	410
Manometer needle level .	0		0		0		0		0	0

These experiments were done with the needle in the antebrachial vein of the right forearm, the sphenous vein of the anterior midleft calf of subject F. M. C. and in the vein on the dorsum of the left foot of R. R. L. All readings are in millimeters of water. Direct saline tube method.

attached thrombus. Although this explanation is simple, we are unable to discover its previous description.

The application of this concept in the care of bed patients is obvious. The patient should avoid forced expiration with the glottis closed, especially in the sitting position in bed. The prevention of fatal pulmonary embolism by femoral vein interruption in cases of thrombosis of the deep leg veins, first advocated by Homans⁶ in 1934, has proved to be a safe operation. In a large series of cases so treated at the Massachusetts General Hospital Allen, Linton and Donaldson⁷ have shown that it is without deleterious effect to the legs and can be done on ill patients with life-saving results.

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6 Homans John Thrombosis of the Deep Veins of the Lower Leg Causing Pulmonary Embolism, New England J Med 211:993 (Nov. 29) 1934
7 Allen, A. W., Linton R. L., and Donaldson, G. A. Thrombosis and Embolism, Ann Surg 118:728 (Oct.) 1943

VENTILATION IN THE SPREAD OF CHICKENPOX AND MEASLES WITHIN SCHOOL ROOMS

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School ventilation, which has necessarily been curtailed on account of fuel shortages during the war, will probably never return to prewar standards. Enlightened opinion, which formerly opposed, on hygienic grounds, lowering the volume of air change, now recognizes the potentiality of higher standards of sanitary ventilation through air disinfection, which can practicably provide the hygienic equivalent of ventilation impossible of attainment by actual air replacement.

Studies, begun in the autumn of 1937, were undertaken to test the hypothesis that the spread of air-borne infection in school rooms could be controlled by radiant disinfection of air. If micro-organisms are air borne, it follows that in a group of persons sharing a confined atmosphere for a given period of time the chance that an infective organism floating in the air will be breathed by a person susceptible to that particular disease is proportionate to the concentration of susceptibles in the atmosphere, just as the chance that a susceptible person breathing the air will become infected is proportionate to the concentration of the specific organisms in the air, the latter being an equilibrium between the rate at which they are added and the rate at which they are removed. In atmospheres where occupancy is intermittent and of relatively brief duration, such as school rooms, the rate of removal is primarily a function of ventilation.

Ventilation of occupied spaces is usually expressed as volume of air change (in cubic feet per minute) either per room or per occupant. Sanitary ventilation, on the other hand, has been defined as the number of cubic feet of air per minute per susceptible,¹ sanitary ventilation thus being in terms of a particular disease.

VENTILATION IN CLASSROOMS AND PATTERNS OF SPREAD OF CONTAGIOUS DISEASE

Those familiar with the patterns of spread in day schools of chickenpox and measles are aware that these diseases, introduced into the relatively immune upper classes, seldom do more than smolder along for a generation or two before dying out. In the more susceptible lower grades, explosive outbreaks and dynamic epidemics are apt to occur (though at times an apparently definite exposure of highly susceptible children may, surprisingly, have no sequelae). If these diseases are air borne, as is now rather generally conceded, this is to say our present standards for the ventilation of school rooms, which provide air change on a basis of total pupils regardless of age or susceptibility, are ordinarily sufficient so to dilute the micro-organisms discharged by an exposing case as to prevent dynamic spread with concentrations of susceptibles such as pre-

From the Laboratories for the Study of Air Borne Infection, University of Pennsylvania School of Medicine, Philadelphia. These laboratories are supported by a grant from the Commonwealth Fund to the University of Pennsylvania for studies on the mechanics and control of airborne infection.
Many have aided in these studies, including Prof. E. B. Wilson, who was consulted on the epidemiologic problems; the medical and teaching staffs of the various schools; Mr. Frederic Robinson of the Hanovia Chemical and Manufacturing Company, which lent the equipment for the study in the Germantown Friends School, and Dr. L. J. Buttolph of the General Electric Company, which lent the equipment for the study in the Swarthmore School.
1 Wells, W. F., and Wells, Mildred W. The Dynamics of Air-Borne Infection, Am J M Sc 206:11 17, 1943

vail in upper classes but are insufficient with concentrations such as are encountered in classes of young children.

There are almost no data reported in the literature as to the critical point of susceptibility above which infection will spread in day schools and below which it will die out, and we have found none at all which are correlated with ventilation. Thomas² studied the spread of measles in infants' departments (children aged 3 to 8 years) in the Woolwich District of London. He concluded that "measles may be expected to appear and spread in a department when the number of children unprotected reaches about 33 per cent, and usually, except when some special conditions obtain, it ceases to spread when the proportion is reduced to 18 per cent." A report from the medical officer of health on the London epidemic of measles in 1929-1930³ indicates that a similar equilibrium existed some quarter of a century later. Measles, it was concluded, tends to assume an epidemic character in individual school classes when the proportion of susceptibles reaches 30 to 40 per cent and to continue to spread until the proportion falls below 15 to 20 per cent.

installations, described in a previous paper,⁴ provides, by central hanging fixtures, irradiation of the upper region of the room above the 7 foot level. The radiation units consist of two crossed "Safe-t-air" tubes in a shallow aluminum pan reflector, made especially for the purpose by the Hanovia Chemical and Manufacturing Company. These fixtures were also hung in other rooms where the children gather as a group. Only where time of exposure seemed negligible, as in halls and lunch room, was it deemed permissible to utilize direct radiation, the most efficient method of radiant disinfection of air.

II. The boroughs of Swarthmore and Nether Providence provide two groups of public schools in adjacent suburban areas, each about 15 miles from Philadelphia. These are public schools, but the areas from which the children come are well to do. The several schools of both groups are built to meet the Pennsylvania code as to space, light and ventilation. Classrooms of 7,000 to 8,000 cubic feet capacity, each planned to accommodate 30 pupils, are provided with mechanical ventilating systems designed to provide 30 cubic feet of fresh outdoor air per pupil per minute.⁵ Since only

TABLE 1.—Chickenpox: Negative (Unproductive) Exposures* in Classes of Varying Susceptibilities

	Susceptibility, per Cent									
	0-19		20-39		40-59		60-79		80-100	
	Exp.	Neg.	Exp.	Neg.	Exp.	Neg.	Exp.	Neg.	Exp.	Neg.
Unirradiated schools										
Penn Charter, grades 1-4.....	0	..	0	..	3	2	1	1	0	..
Penn Charter, grades 5-12.....	2	2	5	4	4	2	0	..	0	..
Germantown Friends, grades 5-12.....	10	10	2	1	0	..	0	..	0	..
Nether Providence, grades K-6.....	0	..	3	3	6	3	8	1	2	1
Nether Providence, grades 7-12.....	0	..	4	4	0	..	0	..	0	..
Swarthmore, grades 7-12.....	1	1	1	1	0	..	0	..	0	..
Unirradiated schools.....	Number	13	13	15	13	5	9	2	2	1
	Per cent	100.0	86.7	85.7	61.5	22.2	50.0			
Irradiated schools										
Germantown Friends, grades 1-4.....	0	..	1	1	4	3	8	4	2	1
Swarthmore, grades K-6.....	2	2	1	1	3	3	3	1	4	3
Irradiated schools.....	Number	2	2	2	7	6	11	5	6	4
	Per cent	100.0	100.0	85.7	85.7	45.5	66.7			

* Only initial exposures of classes are included in this tabulation, not second exposures or exposures by secondary cases due to these initial exposures.

THE PHILADELPHIA EXPERIMENTS

The studies, begun in the Germantown Friends School in 1937, were twice expanded and since the autumn of 1941 have consisted of similar experiments in two neighboring private schools in the city of Philadelphia and two groups of public schools in adjacent suburban areas:

I. The Germantown Friends School and the William Penn Charter School are private day schools located a few squares apart in Germantown, a ward of Philadelphia. Only boys are admitted to Penn Charter, and the sisters of many of these boys attend the coeducational Germantown Friends School. The two groups thus mingle in the homes, the boys of the two schools meet for sports, and the religious and social life of the children interlocks without the schools. Both schools are ventilated only by windows. Penn Charter is wholly unirradiated, while in the Germantown Friends School the classrooms and other gathering places of the children of grades 1 to 4 (two sections to each grade) are irradiated. The design of the classroom

exceptionally did classes exceed 30 pupils in size, this ventilation may be considered the minimum. The schools of Nether Providence are wholly unirradiated, while the two elementary schools of Swarthmore (grades kindergarten-6) are irradiated. In Swarthmore each classroom is equipped with four side-wall fixtures, each containing a 30 watt (36 inch) "Germicidal" tube in high transmission glass, made by the General Electric Company. Halls and lunch room, as in the Germantown Friends School, are directly irradiated.⁴

The simple epidemiologic technics which have been used were also described in the previous report:⁴

1. "Susceptibility" to chickenpox and measles indicates that a history of no previous clinical attack was obtained from the child's parents. The disadvantages of this method are recognized, but the high intellectual and economic level of the groups reduce them to a minimum, an assumption supported by the low number of second attacks of these diseases reported. Similar records as to previous attacks of mumps were kept,

2. Thomas, C. J.: Measles in the Woolwich District. L. C. C., Appendix to Report of Medical Officer of Education for Year Ending March 31, 1905, pp. 46-60.

3. Report of the Medical Officer of Health and School Medical Officer on the Measles Epidemic of 1929-1930. London County Council, London, P. S. King & Son, Ltd., 1930.

4. Wells, W. F.; Wells, Mildred W., and Wilder, T. S.: The Control of Epidemic Contagion: I. An Epidemiological Study of the Effect of Air in Day Schools, Am. J. Hyg. 33: 1-10, 1938. The code of school room ventilation was amended recently to permit as much as 50 per cent of the air to be recirculated, but we are told by the architects of these schools that they were built to the former standard and that recirculation would be impossible with the present design.

but the recent demonstration by Enders⁶ of the acquisition of immunity to this disease by subclinical infections does not permit such data to be considered a reliable index of susceptibility.

2. The mother of every child with contagious disease was questioned as to the last day of attendance in school and date of the onset of symptoms. From the length of the interval between it was judged whether or not the child caused an exposure of his classmates to his infection.

3. Cases following a class exposure in the child's classroom by the accepted incubation period were deemed class secondaries unless the child had also been exposed in the home (home exposure being presumably heavier than class exposure).

various susceptibility groups. There are given the total number of exposures and the number which were negative, that is, in which the exposing case did not give rise to any further cases, in which the dynamic chain of infection was broken. Only initial class exposures are included, that is, the first exposure of that class during the school year. If 1 or more cases occurred before the class was exposed (the child being for any reason away from school during his infective period), the susceptibility of the class was recomputed as of the date of the first exposure. This limitation to initial exposures was decided on because reexposures of classes were frequently to multiple cases, which introduced complexities, a negative result following exposures to 2 or more cases deserving more weight

TABLE 2.—Measles: Negative (Unproductive) Exposures* in Classes of Varying Susceptibilities

		Susceptibility, per Cent									
		0-19		20-39		40-59		60-79		80-100	
		Exp.	Neg.	Exp.	Neg.	Exp.	Neg.	Exp.	Neg.	Exp.	Neg.
Unirradiated schools											
Penn Charter, grades 1-4.....		0	..	2	0	1	0	2	1	1	0
Penn Charter, grades 5-12.....		1	1	7	3	0	..	0	..	0	..
Germantown Friends, grades 5-12.....		3	3	6	3	5	3	1	0	0	..
Nether Providence, grades K-6.....		2	2	6	2	4	0	2	1	..	..
Nether Providence, grades 7-12.....		4	4	0	..	0	..	0	..	..	..
Swarthmore, grades 7-12.....		4	2	6	1	0	..	0	..	0	..
Unirradiated schools.....	Number	11	12	27	9	10	3	5	2	1	0
	Per cent		55.7		33.3		30.0		40.0		0.0
Irradiated schools											
Germantown Friends, grades 1-4.....		0	..	0	..	4	3	5	4	5	5
Swarthmore, grades K-6.....		0	..	4	2	9	6	5	3	3	3
Irradiated schools.....	Number	0	..	4	2	13	9	10	7	8	8
	Per cent		..		50.0		69.2		70.0		100.0

* Only initial exposures of classes are included in this tabulation, not second exposures or exposures by secondary cases due to these initial exposures.

TABLE 3.—Mumps: Negative (Unproductive) Exposures* in Classes of Varying Susceptibilities

		Susceptibility,† per Cent									
		0-19		20-39		40-59		60-79		80-100	
		Exp.	Neg.	Exp.	Neg.	Exp.	Neg.	Exp.	Neg.	Exp.	Neg.
Unirradiated schools											
Penn Charter, grades 1-4.....		0	..	1	1	1	1	2	1	1	0
Penn Charter, grades 5-12.....		0	..	0	..	1	1	0	..	0	..
Germantown Friends, grades 5-12.....		0	..	0	..	2	2	5	2	0	..
Nether Providence, grades K-6.....		0	..	1	1	7	3	6	3	4	0
Nether Providence, grades 7-12.....		0	..	0	..	1	1	0	..	0	..
Swarthmore, grades 7-12.....		0	..	0	..	5	3	3	0	0	..
Unirradiated schools.....	Number	0	..	2	2	17	11	16	6	5	0
	Per cent		..		100.0		64.7		37.5		0.0
Irradiated schools											
Germantown Friends, grades 1-4.....		0	..	0	..	0	..	3	2	3	1
Swarthmore, grades K-6.....		0	..	0	..	1	0	3	1	14	7
Irradiated schools.....	Number	0	..	0	..	1	0	6	3	17	8
	Per cent		..		..		0.0		50.0		47.1

* Only initial exposures of classes are included in this tabulation, not second exposures or exposures by secondary cases due to these initial exposures.

† As to "susceptibility" to mumps, see text.

EFFECT OF RADIANT DISINFECTION OF AIR

In testing the spread of chickenpox and measles in classrooms with and without radiant disinfection of air, i. e. where the experiment consisted in varying the concentration of micro-organisms in the air, only classes with a similar concentration of susceptibles are comparable. This has been especially important in these experiments because the irradiated groups became, grade for grade, progressively more susceptible as the experiments continued. We have therefore divided the classes into five groups as to susceptibility, those under 20 per cent susceptible, 20 to 39, 40 to 59, 60 to 79 and 80 to 100 per cent susceptible. In tables 1 and 2 we have recorded the outcome of exposures in irradiated and unirradiated classrooms of the classes falling into these

than a negative result following an exposure to a single case, results being fractional when multiple cases gave rise to fewer secondaries than the exposing cases.

The total number of class exposures and the number which were negative (unproductive) are given separately in the tables for each school. Since in the test schools it is necessary to separate the upper and lower grades (only the latter being irradiated), this has also been done for the schools wholly unirradiated. In summarizing, however, the percentage negative for the unirradiated and irradiated groups as a whole is computed.

(a) *Outcome of Exposures in Unirradiated Classrooms.*—Despite the small number of exposures in each group, the chance that an exposure in an unirradiated classroom will cause other cases increases with increasing susceptibility with a surprising regularity.

6. Enders, J. F.: Observations on Immunity in Mumps, *Ann. Int. Med.* 18: 1015-1019, 1943.

Thus of 13 exposures to chickenpox in unirradiated classrooms where classes were less than 20 per cent susceptible, not a single exposure gave rise to a secondary case. Of the 15 exposures in classes 20 to 39 per cent susceptible, only 2 caused infection of other children; in classes 40 to 59 per cent susceptible, less than half the exposures caused other cases. But in classes over 60 per cent susceptible only 3 of 11 exposures failed to result in other cases.

When corresponding susceptibility groups are compared, it is seen that a greater percentage of exposures to measles (table 2) resulted in secondary cases than did those of chickenpox. The cases are largely grouped in classes of lower susceptibility, and therefore, although the pattern is similar, it is less regular in the groups of higher susceptibility. In classes less than 20 per cent susceptible, only 2 of 14 exposures caused further cases, while in classes over 20 per cent susceptible, only a third failed to cause other cases.

In table 3 similar data are given for mumps, though the limited dependence to be placed in the susceptibility grouping has already been mentioned. While the susceptibilities are almost certainly high, and therefore not comparable to those of other diseases, there is no reason to assume that either the irradiated or the unirradiated groups are disproportionately high or low. It is seen that mumps required for spread a higher percentage susceptibility as given by previous clinical attack than did chickenpox. However, since these susceptibilities are almost certainly high, the true percentage may well correspond to those of the other two diseases.

(b) *Outcome of Exposures in Irradiated Classes.*—As is seen by the three tables, the ultraviolet lights increased, in all susceptibility groups and in all three diseases, the chance that an exposure would be negative, that the chain of infection would be broken. I do not consider that these figures represent the maximum benefit to be derived from radiant disinfection. The experiments were exploratory, begun at a time when radiant disinfection of air was a new art, hardly out of the laboratory, and were conducted during a period when technical and administrative problems were being solved.

Comparison of the percentage of negative exposures in the irradiated and unirradiated classrooms shows the difference to be greater in classes of high susceptibility, presumably because in classes of lower susceptibilities sanitary ventilation is ordinarily sufficient to prevent the spread of infection with or without any added effect of disinfection of the air. Moreover, the reduction effected by the lights in productive exposures is, while definite, irregular. Thus, in the case of measles there was actually a higher percentage of negative exposures in the classes 80 to 100 per cent susceptible than in any other group. To those who have followed the experiments closely, this suggests that no one cause has been responsible for secondary cases under the lights, but a number of causes, some preventable, some inherent in the method. Of the latter the most serious is high relative humidity of the air, ultraviolet rays being relatively impotent against micro-organisms suspended in air more than 60 per cent saturated. (Thus the productive exposures to mumps in the 80 to 100 per cent susceptibility group of the Swarthmore school occurred in an early fall outbreak, September–November, before heating the indoor air dried it.) Unavoidable too are the secondary cases when droplet infection is too direct for action of indirect irradiation

to be effective. (In May 1938 a first grade child in an irradiated classroom infected with measles 3 small classmates who sat facing her at a table, no children at other tables being infected.) In the case of exposures preventably productive, that is, "breaks" in technic, inadequate servicing of the lights, either as to cleanliness or in testing deterioration and in replacing burners whose output has fallen, is the most serious administrative problem. Misunderstandings as to the principles on which the lights work play a part, as, for example, when we found the lights of one school draped with autumn leaves and Spanish moss for the Thanksgiving festivities. Again, a first grade outbreak of German measles, 9 little girls infected from another little girl, was apparently due to the acquisition of a playhouse within the schoolroom—reproducing in miniature the exact situation the lights were designed to prevent.

SUMMARY

1. The school ventilation standard of 30 cubic feet of air per minute per child is both difficult to attain and inadequate to prevent classroom spread of chickenpox and measles except in relatively immune classes (less than 40 per cent susceptible to chickenpox, less than 20 per cent susceptible to measles).

2. Radiant disinfection of air can be substituted for actual air replacement. In the experiments reported here, the ultraviolet lights increased, in all susceptibility groups and in the three diseases tested—chickenpox, measles and mumps—the chance that an exposure would be negative.

PENICILLIN IN THE TREATMENT OF CHRONIC INFECTIONS OF THE LUNGS AND BRONCHI

AN ANALYSIS OF NINETY-THREE CASES

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AND

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Penicillin is the most effective and least toxic antibiotic in general use today. As with all new chemotherapeutic agents, the initial widespread use of penicillin will become more completely defined as its field of usefulness becomes more fully understood. The value of penicillin in the treatment of acute medical and surgical infections is well established. Only by clinical investigation can its value be determined in the treatment of chronic diseases. Chronicity in pulmonary infection introduces factors not present during the acute stage. The presence of complicating mechanical factors such as tissue destruction, fibrosis, avascularity and bronchial occlusion all influence the efficacy of penicillin therapy. Furthermore, chronic pulmonary infections have a varied bacterial flora, and some of the organisms may not be penicillin sensitive. In contrast to the unparalleled value of penicillin in the treatment of acute pulmonary infections, it is of more limited value in the treatment of chronic pulmonary and bronchial infections.

Ninety-three patients with chronic infections of the lungs and bronchi were treated with penicillin. Forty-five of these patients had bronchiectasis, 17 had lung abscesses, 6 had suppurative pneumonitis, 19 had chronic bronchitis and 5 had fungous infections. The

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results of penicillin therapy in the treatment of these patients will be presented and the indications for penicillin will be discussed. This group is of further interest because the patients with bronchiectasis and chronic bronchitis were treated first by intramuscular and later by intratracheal penicillin. As a whole, the greater the degree of permanent tissue destruction and infection, the less benefit was derived from penicillin. This is demonstrated by the partial or transitory results obtained in advanced bronchiectasis, pulmonary suppuration and chronic lung abscesses as contrasted with the excellent results obtained in chronic bronchitis and minimal bronchiectasis. Penicillin has been found to be of value in the treatment of acute exacerbations with increased toxicity, superimposed attacks of bronchopneumonia, chronic bronchitis, minimal bronchiectasis and advanced bronchiectasis too widespread for pulmonary resection. It is also of value in preparing the patient for operation, as an adjunct to surgery making possible operative intervention otherwise impossible and in decreasing the postoperative complications. Benefit derived from penicillin therapy may be only transient; consequently operative intervention when indicated should not be withheld because of a false sense of security.

BACTERIAL FLORA FOUND IN CHRONIC PULMONARY AND BRONCHIAL INFECTIONS

The bacterial flora found in chronic infections of the lungs and bronchi are varied. All of the patients had bronchoscopic examinations. Specimens were obtained for culture and for penicillin sensitivity determinations. No single organism appeared to be etiologically responsible. Cultures showed a combination of organisms with one organism predominating. The bacteria found in chronic bronchitis were similar to those found in bronchiectasis. The most common organisms isolated were alpha, beta and gamma hemolytic streptococci, *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Less frequently found were *Escherichia coli*, *Aerobacter aerogenes* and *Proteus vulgaris*.

Anaerobic streptococci, fusiform bacilli and spirochetes (*Borrelia vincenti*) were more commonly found in patients with chronic lung abscesses and pulmonary suppuration. The streptococci were considerably more sensitive to penicillin than were the staphylococci. Eighty per cent of the streptococci were sensitive to 0.1 Oxford unit or less of penicillin. The other 20 per cent were susceptible to 1 Oxford unit or less. This may be compared to the greater resistance of staphylococci to penicillin. Only 44 per cent of staphylococci were inhibited by 0.1 unit or less and 37 per cent required more than 100 units of penicillin. The coagulase negative staphylococci were found to be more sensitive to penicillin therapy than the coagulase positive organisms. The sensitivity of bacteria to penicillin appeared to vary considerably according to the location of the infection and the type of infection from which they were isolated. Similar bacteria cultured from wounds (mainly battle casualties) showed far greater penicillin resistance than those cultured from bronchi. Many of both groups had had previous penicillin therapy.

PENICILLIN IN THE TREATMENT OF BRONCHIECTASIS

Penicillin is of no permanent value in the treatment of advanced bronchiectasis. Bronchiectasis is a chronic disease characterized by sepsis, cough, sputum, varying degrees of debility and repeated attacks of broncho-

pneumonia. There is bronchial and bronchiolar destruction, dilatation and chronic infection. The degree of disability is largely dependent on the degree of sepsis, which in turn is dependent on the adequacy of bronchial drainage. Penicillin is of considerable value in the treatment of the recurrent pneumonic episodes as well as in decreasing the amount of sepsis and toxicity during the interval stages. It frequently decreases the cough and sputum and increases the sense of well being. It occasionally changes the character of the sputum. However, as soon as the penicillin is discontinued these symptoms may recur. Advanced bronchiectasis is the end stage of a destructive process characterized by replacement of the normal bronchial architecture by less specialized tissue. The ciliated columnar epithelium is replaced by a nonciliated, cuboidal or squamous epithelium. The normal elastic and smooth muscle fibers are replaced by scar tissue. The mucous membrane surface is frequently ulcerated and the bronchial wall replaced by granulation tissue. Because of the loss of the normal cleansing action of the bronchial tree due to the loss of the ciliary action of the mucous membrane and the peristaltic action of the bronchial wall, stasis of exudate and resulting infection occur. The pathologic structure of bronchiectasis explains the chronic state of sepsis and its recurrent periods of exacerbation. Penicillin is only of transient value in the treatment of this sepsis and is no assurance against the recurrence of infection.

During the past year over a hundred patients with bronchiectasis have been treated. Of these, 45 patients with suggestive histories of bronchiectasis were treated with intramuscular penicillin for bronchopneumonia at other hospitals prior to admission. Excellent results were obtained. However, a productive cough and some degree of sepsis persisted. Bronchograms substantiated the diagnosis of bronchiectasis. Because of the gratifying results obtained during the period of acute exacerbation, intramuscular penicillin usually in the



Fig 1.—Extent of 'acicular bronchiectasis'

dosage of 25,000 units every three hours was continued for one to two months in most of these patients and as long as three months in 4 patients. The results obtained were intangible and difficult to analyze. However, it was felt that the majority obtained some benefit. In some patients the sputum decreased and changed in character. Others appeared to raise more sputum. Most patients felt that they were generally stronger and that their appetites were better. One third of the patients noted no improvement. Most of the benefit was noted within the first several weeks of treatment, and thereafter there was little change. Even though improvement was noted, some symptoms of sepsis and a productive cough persisted. Three to four weeks after the penicillin was

stopped symptoms became aggravated. No patient with advanced bronchiectasis appeared to obtain any permanent benefit from intramuscular penicillin. These patients had advanced bronchiectasis that only pulmonary resection by lobectomy could hope to cure. They were then transferred to this center for further treatment. Prior to pulmonary resection a course of intratracheal penicillin was given in an effort to determine any additional benefit that might be derived from this route of administration.

CHRONIC LUNG ABSCESS

Seventeen patients with chronic lung abscess were treated with intramuscular penicillin. The effectiveness of penicillin per se in the treatment of acute lung abscess cannot be determined from our studies, for only those patients who had not responded successfully to previous penicillin therapy were transferred to this center for surgical treatment. The toxicity in 4 patients demanded immediate drainage. The others were again given a trial of penicillin therapy intramuscularly. These patients as a group showed some decrease in toxicity, with a concomitant decrease in the pulse, fever, cough and sputum. Roentgenologically some decrease in the surrounding pneumonitis was occasionally seen. Only 1 patient healed completely. He had shown no previous response to sulfadiazine therapy. A second patient healed almost completely only to have the abscess recur. As a whole there was general symptomatic improvement. However, as soon as therapy was discontinued symptoms recurred. Two patients had acute exacerbations while on treatment (fig. 2).

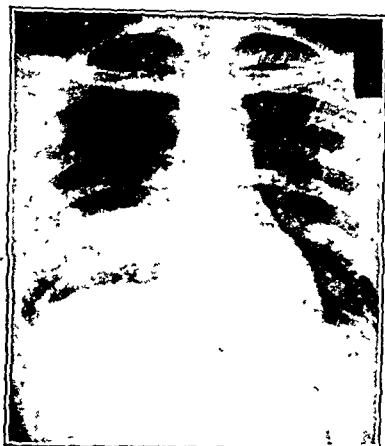


Fig. 2.—Chronic lung abscess of five months' duration that had an acute exacerbation while on penicillin therapy and required immediate drainage.

The effectiveness of penicillin in the treatment of chronic lung abscess depends largely on the underlying pathologic changes in the lungs. The mechanical factors of tissue destruction, necrosis and gangrene as well as the adequacy of bronchial drainage must be considered. The identity of the causative organisms, their virulence and whether or not they are sensitive to penicillin must be known. These factors determine the clinical course of such infections. It is known that acute lung abscesses with adequate bronchial or bronchoscopic drainage may heal spontaneously. More will respond to sulfonamide and penicillin therapy. However, after a reasonable time has elapsed without healing, further medication with these agents should be supplemented by surgical drainage. There should be no competition of methods in the treatment of lung abscess. One treatment should be an adjunct to the other. Certainly penicillin should be employed even though it does nothing more than to prepare the patient better for operation and to lessen the postoperative complications. Eventually, surgical drainage was employed in all except 1 of these cases.

SUPPURATIVE PNEUMONITIS

Six patients with suppurative pneumonitis were treated with intramuscular penicillin. Four of these patients were treated elsewhere during the acute phase but progressed to chronic suppuration in spite of the penicillin therapy. Even though penicillin did not prevent or cure the pulmonary suppuration, it did decrease the degree of toxicity as well as promote symptomatic improvement. From this standpoint alone penicillin appeared to be of value. Most of these patients had been sick from six to twelve months prior to admission and had had two to four courses of penicillin therapy. When the extent of pulmonary destruction and infection is realized, the failure of chemotherapy alone is readily understandable. When the patient reaches the peak of improvement with penicillin, surgical therapy in the form of pulmonary resection or drainage is indicated. Four of these patients were cured by pulmonary resection and 2 had surgical drainage.

FUNGOUS INFECTIONS

Fungous infections of the lung may be primary or secondary. It is not uncommon to find fungi in the sputum of patients having such debilitating diseases as secondarily infected carcinomas, pulmonary suppuration or chronic lung abscesses. They are frequently found in company with spirochetes and fusiform bacilli. The fungus may be saprophytic and be of no clinical significance. When the fungus is the predominating organism causing the infection, considerable gravity exists because of resistance to therapy.

Five patients with fungous infections of the lungs have been treated with penicillin. Two had coccidioidomycosis, 2 actinomycosis and 1 patient had *Monilia albicans* infection. The patients with coccidioidomycosis and *Monilia albicans* infection had no apparent benefit from intramuscular penicillin. There was no change in the clinical course or the roentgen appearance of the lungs.

Actinomyces bovis is considered sensitive to penicillin therapy. Two patients with chronic pulmonary suppuration had *Actinomyces* cultured from bronchoscopic specimens taken from the affected lungs. Other organisms also were present, but the predominant organism appeared to be *Actinomyces*. The onset of the disease in these patients was insidious, the course progressive and characterized by periodic episodes of acute exacerbation. They were debilitated and septic and had a foul productive cough. Both patients had been previously treated with long courses of sulfonamide and penicillin with only transient benefit. After admission to this hospital these drugs were again employed. If drug therapy was stopped, toxicity soon increased, only to be relieved again after four to six days of chemotherapy. Penicillin appeared to be more effective than the sulfonamides, but the combination of the two was most effective. Though partial symptomatic improvement resulted with chemotherapy, no change in the pulmonary suppuration was noted roentgenologically. Apparent cure by pulmonary resection in combination with chemotherapy resulted in these 2 patients.

CHRONIC BRONCHITIS

The chronic bronchitis group comprised 19 patients. It included patients with ulcerative tracheobronchitis following viral and pyogenic infections as well as hyper-

plastic, asthmatic and catarrhal bronchitis. These patients had had numerous hospitalizations for recurrent bronchopneumonia, productive cough and varying degrees of disability over a period of years. Most of them had been treated at one time or another with intramuscular penicillin, with some benefit. Bronchograms failed to show any evidence of bronchiectasis. Though these patients had shown some response to intramuscular penicillin, dramatic improvement was noted following its intratracheal use. The course of the bronchitis following intratracheal penicillin was followed by periodic bronchoscopic examinations. The use of intratracheal penicillin in the treatment of chronic bronchitis and bronchiectasis will be discussed.

'INTRATRACHEAL' PENICILLIN

Until recently only three routes of penicillin administration were available, the intravenous, the intramuscular and the local application. Penicillin in its oral form had not been perfected. The intramuscular or intravenous administration of penicillin over any period of time is associated with considerable discomfort to the patient, necessitates continuous hospitalization and demands considerable nursing time. For these reasons and because of the fact that the infection in bronchitis is relatively superficial it was felt that the daily intratracheal application of penicillin would be of value. The first patients on whom this was tried had viral or pyogenic ulcerative tracheobronchitis. Bronchoscopy was done before, during and following intratracheal therapy. Complete healing of the ulcerative bronchitis was noted in several weeks' time, in contrast to several months' time with the usual forms of treatment.

Initially, 3 to 5 cc. of a saline solution of sodium penicillin containing 250 Oxford units to the cubic centimeter was used. This, at that time, was the accepted concentration of penicillin for local application. This concentration was later increased to 1,000, 5,000 and finally to 10,000 Oxford units to the cubic centimeter with no apparent irritating effect to the patient's tracheobronchial mucosa. It was impossible for the patient to tell what concentration was being applied. With this concentration as much as 30,000 to 50,000 units of penicillin can be applied daily or as desired to the tracheobronchial tree at one application. As much as 600,000 to 1,000,000 Oxford units of penicillin can be applied within a three week period. This is felt to be an effective dosage. A blood penicillin level as high as 0.03 Oxford unit as determined by the multiple tube dilution method using a sensitive strain of *Staphylococcus aureus* as the indicator organism can be obtained within thirty minutes following the intratracheal administration. With increasing concentration, increasing benefit was obtained. Those patients not relieved by the smaller concentration obtained relief with the larger dosage.

METHOD OF APPLICATION

The method of administration is the introduction of the penicillin directly through the vocal cords by means of indirect laryngoscopy and a flexible laryngeal cannula. The penicillin is injected at the end of expiration, thus necessitating an inspiration before coughing is possible. Many of the patients can take the intra-

tracheal penicillin without coughing. The patient leans to the affected side during administration. If need be, penicillin can be injected on both sides. On coughing, patients can detect a penicillin taste as long as four to six hours after administration.

Most patients with chronic bronchitis believed that more benefit was obtained from the intratracheal than from the intramuscular use of penicillin. In patients with chronic bronchitis and minimal bronchiectasis almost complete relief of symptoms was obtained in two to four weeks' time. Every patient with bronchitis stated that "definite improvement had been obtained. Patients with asthmatic bronchitis secondary to an intrinsic bacterial factor were also considerably improved. They noted a decrease in the cough and sputum, and relief from wheezing and the sensation of tightness in the chest. These patients felt that they were freer from symptoms than at any time since the onset of their disease." Several of these patients had been previously treated with intramuscular penicillin with some benefit, but they felt that the daily intratracheal penicillin was more effective. Patients with asthma obtain no relief from penicillin, and some may show sensitivity with resulting asthmatic attacks.

Forty-five patients with bronchiectasis were similarly treated. Thirty-eight patients had advanced bronchiectasis, and 7 patients minimal bronchiectasis. The 7 patients with minimal bronchiectasis obtained almost complete relief of symptoms. Two thirds of the patients with advanced bronchiectasis felt that there had been definite improvement from such treatment, but not to the extent noted in the less advanced conditions. Improvement in symptoms did not occur until after four or five days of treatment.

Some of the bronchiectatic patients noted less sputum and cough. Others stated that they could raise more easily and that there was an increase in sputum. Several improved to the extent that while on treatment the symptoms had so subsided that they felt lobectomy was not necessary. However, these were patients with advanced bronchiectasis and, after penicillin was discontinued, symptoms soon recurred and operative intervention was welcomed. The degree of improvement was usually, but not invariably, proportional to the severity of the disease and the acuteness of the infection.

Those patients with advanced bronchiectasis with severe secondary bronchitis were also treated preoperatively with intratracheal penicillin. They too noted alleviation of symptoms and considerable reduction in the productive cough. Healing of the secondary bronchitis was noted bronchoscopically. It was felt that the intratracheal penicillin was of particular value in the treatment of chronic bronchitis, in minimal bronchiectasis, in advanced inoperable bronchiectasis and in the preoperative preparation of lobectomy patients.

SUMMARY

The clinical use and value of penicillin in the treatment of 93 patients with chronic infections of the lungs and bronchi were studied. Penicillin is of unparalleled value in the treatment of acute pulmonary infections, but as chronicity develops it becomes less effective. Chronicity in pulmonary infections introduces factors not found during the acute stage which influence the

efficacy of penicillin therapy These are the mechanical factors of tissue destruction, fibrosis, avascularity and bronchial occlusion

Routine bronchoscopy was done before, during and after penicillin therapy The course of the disease and the efficacy of treatment were noted Bronchoscopic specimens were obtained for culture and penicillin sensitivity of the organisms isolated Even though the sputum decreased in amount and evidence of sepsis diminished, the bacterial flora was not appreciably affected

Penicillin appears to be of value in the treatment of acute exacerbations of chronic infections, superimposed attacks of bronchopneumonia, chronic bronchitis, minimal bronchiectasis and advanced bronchiectasis too widespread for pulmonary resection It is also of value in preparing the patient for operation, as an adjunct to surgery making possible operative intervention otherwise impossible, and in decreasing the post-operative complications

Penicillin is of no permanent value in the treatment of advanced bronchiectasis Pulmonary resection should not be withheld when indicated because of the false sense of security resulting from temporary benefit

In the treatment of pulmonary suppuration, chronic lung abscesses and fungous infections the chief value of penicillin is its ability to decrease the general manifestations of toxicity, to promote symptomatic improvement and to prepare the patient for operative intervention

The intratracheal administration of penicillin in the treatment of chronic bronchitis and bronchiectasis appeared to give more benefit in many cases than the intramuscular route As much as 30,000 to 50,000 Oxford units of penicillin can be applied daily in one application to the tracheobronchial tree Excellent results were obtained in patients with chronic bronchitis and minimal bronchiectasis by this method

It is of interest to note that the pathologic examination of 75 lobectomy specimens failed to show any appreciable difference in the degree of infection in 25 specimens in which penicillin had not been employed preoperatively, as compared to 50 specimens in which penicillin had been used

Pulmonary resection for chronic sepsis with present day technics, anesthesia and chemotherapy is a safe procedure and can be recommended without hesitation There was only 1 mortality out of 100 patients having lobectomy by us, an operative mortality of 1 per cent, which compares favorably with any other operative procedure

Mental Hygiene in Later Maturity—Aging is a normal biologic process or a series of processes, but it is usually hastened, exaggerated or modified in some fashion by abnormal or disease trends incident to life in a quantitative or qualitative relationship trends which are sometimes not readily distinguished from normal senile developments However, senility is the favorable time of life for the development of several serious diseases, diabetes mellitus and cancer, which complicate the general problem in specific ways involving any mental hygiene program that may be under consideration—Lewis, Nolan D C *Mental Hygiene in Later Maturity*, from *Mental Disorders in Later Life* edited by Oscar J Kaplan, Stanford University Press, 1945

DISTORTIONS OF THE GASTRIC FEEDING REFLEX

ASSOCIATED WITH EXTRAGASTRIC PATHOLOGIC CONDITIONS THEIR CLINICAL SIGNIFICANCE

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MIAMI, FLA

The walls of the normal fasting stomach are maintained in coaptation by a state of tonus of its muscular coats, with recurrent periods of superimposed peristaltic activity With the first taste of food there follows an immediate relaxation of gastric tonus with usually a fairly complete inhibition of peristalsis, resulting in a widening of the gastric lumen to accommodate the expected food ingesta This is the normal gastric feeding reflex (fig 1)

In the presence of various types of extragastric pathologic change, usually intra-abdominal or pelvic, this normal feeding reflex is distorted Instead of relaxation there is an immediate increase in tone, with or without superimposed peristalsis The degree of distortion roughly parallels the intensity of the sensory or psychic stimuli (fig 2A and B) and is not influenced by the degree of acidity of the gastric secretions (table 1)

TABLE 1—Gastric Analysis in Eleven Cases and Degree of Distortion of the Feeding Reflex

		Degree of Acidity					Degree of Distortion
Case		Fasting	30 Min	60 Min	90 Min	120 Min	
11	Free acid	0	0	0	0	0	None
	Total acid	50	44	56	32	28	
15	Free acid	0	0	0			2 plus
	Total acid	58	44	56			
22	Free acid	0	0	0	0	0	1 plus
	Total acid		20	20	28	40	
12	Free acid	0	0	0	0	0	None
	Total acid		30	34	56	34	
14	Free acid	0	0	0	0	0	3 plus
	Total acid						
16	Free acid	0	0	0	0	0	2 plus
	Total acid						
2	Free acid	0	0	0	10	26	3 plus
	Total acid	44	70	68	92	90	
6	Free acid	0	0	0	0	58	4 plus
	Total acid	24	38	30	76	92	
4	Free acid	50	36	44	10	56	2 plus
	Total acid	80	66	94	120	92	
3	Free acid	50	12	0	0	0	4 plus
	Total acid	138	36	30	38	42	
5	Free acid	102	56	50	86	76	4 plus
	Total acid	136	166	88	118	118	

There apparently was no relationship between the degree of acidity and the distortion of the reflex

These distortions of the normal gastric feeding reflex are associated with characteristic symptoms referable to the stomach (table 2) and vary in severity with the degree of distortion of the feeding reflex (fig 2B) Other symptoms are usually associated and vary with the site of the pathologic condition initiating them, such as pain in the right upper quadrant in the presence of gallbladder disease, pain or distress in the flanks or pelvis associated with urologic or pelvic pathologic change, and so on But the symptoms referable to the distorted gastric feeding reflex have certain definite characteristics usually manifesting themselves by distress, a feeling of fullness, eructations, heartburn or actual pain in the epigastrium, left upper quadrant or substernal region They all have one common characteristic and that is their immediate occurrence on the ingestion of food

Read before the Section on Gastro-Enterology and Proctology at the Ninety-Fourth Annual Session of the American Medical Association, Chicago June 15 1944

These symptoms are usually ascribed by the patient to "gas" and probably constitute the most common abdominal symptom complex encountered.

An understanding of the motor changes in the stomach and their mode of production, associated with these

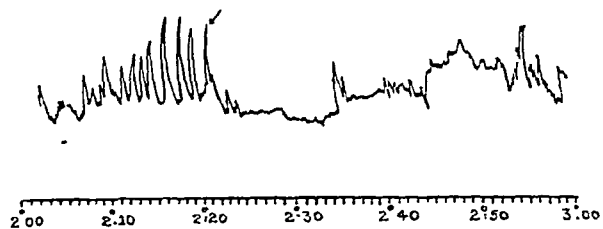
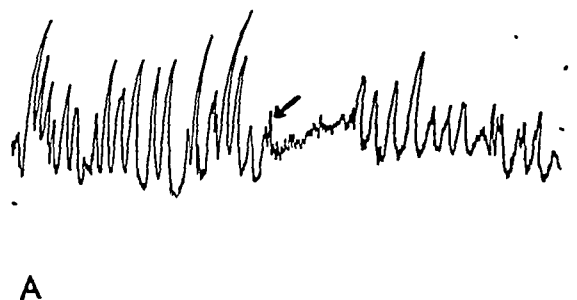
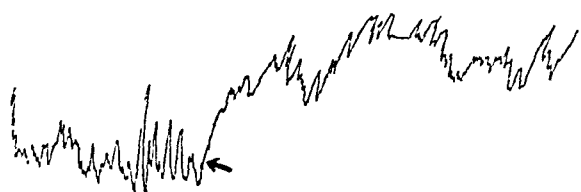


Fig 1—This tracing, of stomach of Mrs. M., shows the normal relaxation of the gastric musculature which occurs immediately with the ingestion of food. The patient was fed at the point indicated by the arrow. It will be noted that there was an immediate inhibition of peristalsis and relaxation of tone, with a gradual resumption of tone and peristaltic activity.

characteristic symptoms, is of inestimable value in the management of these otherwise, sometimes difficult clinical problems, as shown in the case of Mrs. J., who had been attending the outpatient clinic for many months with vague postprandial epigastric distress and irregular, usually constipated bowel movements. These symptoms had been attributed to a pernicious anemia,



A



B

Fig 2—4, patient S. F., with irritable colon moderate distortion of gastric feeding reflex, peristalsis inhibited, no normal relaxation. At point marked by arrow a shredded wheat biscuit with milk was given. Tracing shows very active peristalsis in the fasting stomach with inhibition of peristalsis with feeding and for several minutes thereafter, with a rapid resumption of peristalsis and tone, this being a moderate distortion of the gastric feeding reflex associated with a moderate stimulation from the colon. B, Mrs. D., with chronic appendicitis pronounced distortion of gastric feeding reflex with considerable increase in tone. Tracing shows decided inversion of the gastric feeding reflex with much increase in tone and superimposed peristalsis, symptom severity being 4 plus and distortion of the feeding reflex being 4 plus. At point indicated by arrow a shredded wheat biscuit with milk was given.

with complete achylia after histamine stimulation and a typical atrophic gastritis demonstrated gastroscopically. Her pernicious anemia responded satisfactorily to treatment, but her abdominal complaints continued.

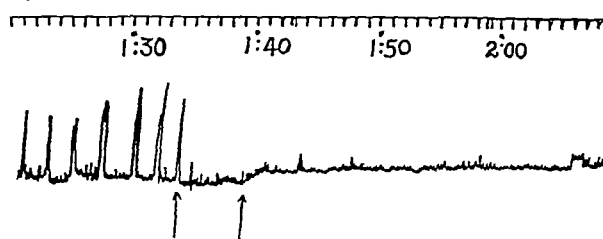
A repeated complete physical examination revealed only a moderate number of internal hemorrhoids, a moderate pectinitis and an associated well defined spasm of the anal sphincter.

A kymographic tracing before correction of her anal pathologic condition with an intragastric balloon was made after a fourteen hour fast. This tracing (fig. 3 A) showed a moderate distortion of the feeding reflex, comparable to the severity of her symptoms. A hemorrhoidectomy was performed, her abdominal symptoms completely disappeared, and five weeks later another tracing was made (fig. 3 B) which showed a normal gastric response to feeding as the result of correction of the pathologic condition in the anus.

Another patient, Mrs. M., complained of vague abdominal symptoms consisting of epigastric pressure and distress and nausea and vomiting. A complete survey, including gastrointestinal fluoroscopy and radiography, complete physical examination and routine laboratory studies, failed to reveal the cause of her distress. A urologic investigation was made and a



A



B

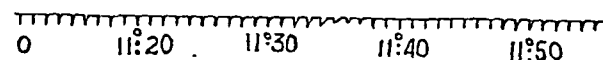


Fig 3—A, tracing of stomach of Mrs. J., who was fed at time interval indicated by arrows. Very rapid gastric peristalsis associated with hemorrhoids and an achylia and pernicious anemia. There is a moderate distortion of the gastric reflex consisting of a lack of inhibition of peristalsis and a slight increase in tone. B, tracing on the same patient showing a normal gastric feeding reflex five weeks after a hemorrhoidectomy. Feeding of meat and vegetables was given at interval indicated by arrows.

stricture of the urethra and left ureter was found. A kymographic tracing of her stomach was made in the usual manner (fig. 4) and showed an inversion of the gastric feeding reflex, with almost complete obliteration of the gastric lumen. Correction of the urologic condition resulted in complete subsidence of her abdominal symptoms. In this case, unfortunately, after subsidence of symptoms we were unable to obtain another gastric tracing.

Kymographic tracings were made on a dog's stomach, through a permanent gastric fistula, before and after a left sided ureterostomy. Figure 5 A shows a normal gastric feeding reflex before ureterostomy, and figure 6 B shows the distortion of the gastric feeding reflex after trauma to the left ureter. It will be noted that the distortion seen in this tracing of the dog's stomach is almost identical with that shown in the tracing on the human stomach (fig. 4) with pathologic change of the left ureter.

Kymographic tracings were made of 19 human stomachs with varying types of extragastric pathologic changes as outlined in table 2. In all these cases there was a fairly constant qualitative relationship between the intensity of symptoms and the degree of distortion of the feeding reflex. In 4 cases the sensory stimulation was apparently greater than the degree of distortion. This was in part explained by the patient's susceptibility to pain.

It is beyond the scope of this presentation to discuss fully the distortions of the gastric feeding reflex initiated by psychic stimulation. However, the experi-

It is evident from a wide clinical experience and the studies made on the motor activity of the stomach that, in the presence of the syndrome of postprandial epigastric distress, fulness, pressure, burning or pain and eructations, the stomach is almost the last place to look for pathologic changes. When this syndrome is present it is an immediate challenge to one's diagnostic acumen and constitutes a definite indication for a complete clinical investigation to identify the source of the extragastric stimuli producing the changes in the motor function of the stomach, which may arise from any source from the psyche to the rectum.

TABLE 2.—Correlation of the Diagnosis, Intensity of Symptoms and Degree of Inversion of the Reflex

Case	Diagnosis	Abdominal Symptoms	Symptom Intensity	Degree of Inversion
1	Chronic appendicitis	Postprandial epigastric distress, also right upper quadrant distress	4 plus	4 plus
2	Chronic appendicitis	Postprandial epigastric burning, eructations	2 plus	3 plus
3	Chronic appendicitis; duodenal ulcer	Postprandial epigastric pressure, eructations, abdominal soreness	3 plus	4 plus
4	Chronic appendicitis; duodenal ulcer	Postprandial epigastric distress, right lower quadrant soreness	2 plus	3 plus
5	Duodenal ulcer	Epigastric soreness, eructations	3 plus	4 plus
6	Chronic duodenal ulcer; moderate stenosis	Soreness left upper quadrant, eructation; occasional vomiting	3 plus	4 plus
7	Duodenal ulcer; cholecystitis	Severe epigastric and right upper quadrant pain	4 plus	4 plus
8	Hypertrophic hepatitis	General epigastric pain, eructations	4 plus	4 plus
9	Colon stasis; irritable colon; overeating	Epigastric pressure, eructations	2 plus	2 plus
10	Glossitis subacute; hemorrhoids; irritable colon	Epigastric burning	3 plus	2 plus
11	Pronounced colon stasis; irritable colon	Epigastric gnawing pain	1 plus	1 plus
12	Hemorrhoids; irritable colon; pronounced stasis	Epigastric fulness and pressure	2 plus	1 plus
13	Gastric neurosis; colon stasis; achlorhydria	Epigastric burning, pressure and eructations	3 plus	2 plus
14	Pruritus ani	Epigastric fulness and soreness; eructations	1 plus	3 plus
15	Pernicious aneur	Epigastric gnawing pain	3 plus	1 plus
16	Pernicious aneur	Epigastric distress and eructations	1 plus	2 plus
17	Urethral and ureteral stricture	Epigastric fulness, distress; nausea and vomiting	3 plus	4 plus
18	Achlorhydria; gastric atony	Symptom free	.....	None
19	Achlorhydria	Symptom free	.....	None

ence of Mrs. A. rather theatrically demonstrates this relationship. She was in perfectly normal health and completely symptom free. She sought shelter under a tree from a sudden rain squall. The tree was struck by lightning and she was knocked to the ground but sustained no bodily injuries. From that time on she was emotionally unstable and promptly developed postprandial epigastric burning, fulness, pressure and eructations. Most careful and repeated surveys failed to reveal any organic lesion except an achylia gastrica. A kymographic tracing showed a well defined inversion of the feeding reflex.

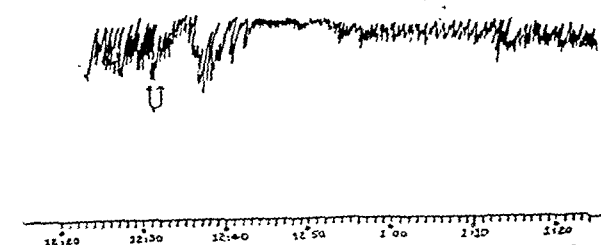


Fig. 4 (Mrs. A., hyperperistalsis).—Well defined distortion of the feeding reflex in the human stomach associated with urethral stricture and left ureteral stricture. Arrows point to feeding with 4 ounces of milk and potato gruel.

Clinically, emotional stresses are frequently encountered with the syndrome of postprandial epigastric distress. The common association of anorexia with grief, and the loss of relish of food with anxiety, hostility or resentment are common experiences.

Stewart and Harold Wolf,¹ in observations through a permanent gastrostomy, have shown that in the presence of a psychic state of hostility and resentment there is an increased gastric motility associated with gastric hyperemia and hyperacidity.

1. Wolf, Stewart, and Wolf, Harold, G.: Human Gastric Function: An Experimental Study of a Man and His Stomach, London, Oxford University Press, 1943, pp. 113-119.

SUMMARY AND CONCLUSIONS

The normal gastric feeding reflex consists of an immediate relaxation of the muscular walls of the stomach on the first taste of food.

In the presence of extragastric abdominal, pelvic or psychic pathologic change this reflex is distorted. Instead of relaxation with the ingestion of food there is an immediate increase in tone or peristaltic activity, or both.

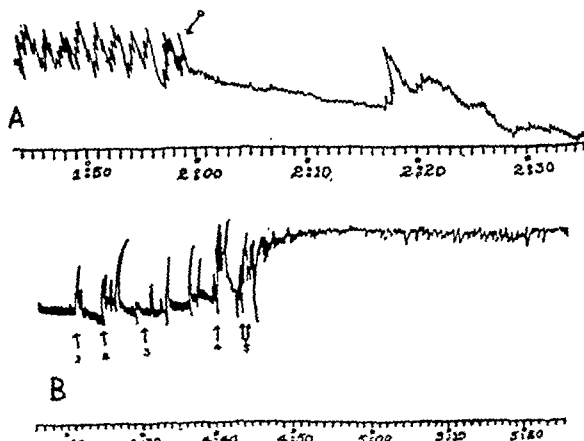


Fig. 5.—A, stomach tracing of dog, showing a normal gastric feeding reflex. At the point indicated by the arrow a feeding was given of ¼ pound of raw beef. B, tracing of same dog's stomach after a left ureterostomy, which shows a decided distortion of the feeding reflex. The dog was fed at the point marked by the double arrows. A great deal of similarity will be noted between the tracing of the dog and that of the human stomach shown in figure 4, both associated with a urologic pathologic condition.

The degree of distortion of the feeding reflex is roughly proportional to the intensity of the symptoms and is not influenced by the degree of acidity of the gastric secretions.

These distortions of the feeding reflex are almost invariably associated with a characteristic group of

symptoms initiated by eating and consisting of a feeling of fullness, pressure, distress, eructations, heartburn or actual pain in the epigastrium, left upper quadrant or substernal region.

These symptoms can be permanently relieved only by finding and correcting the extragastric pathologic condition producing them, as exemplified in the cases reported.

The abdominal symptom complex associated with distortions of the gastric feeding reflex is the most common one encountered by the gastroenterologist and the general practitioner. An understanding of these changes in the muscular activity of the stomach associated with extragastric pathologic conditions has been of inestimable value in rationalizing otherwise difficult clinical problems

ABSTRACT OF DISCUSSION

DR. MORTON J. OPPENHEIMER, Philadelphia: There is abundant clinical evidence in support of Dr. Welch's views. Barron and his associates reported gastric hypermotility associated with epigastric distress. They concluded that sensory nerves of the stomach were stimulated by the abnormal motor activity; after cholecystectomy, gastric hyperactivity was recorded when patients complained early of gas pains and later of excessive hunger. As in Dr. Welch's patients, preoperative apprehension was found concomitant with increased motility. This increase or the inhibition depends on the preexisting tonus level of the stomach. Herniorrhaphy inhibited gastric motility followed by increased activity. The distention and inhibition during operation were considered to be the stimulus for the subsequent increased peristalsis, with resulting gas pains. Benign duodenal ulcer producing pyloric obstruction of short duration has also been shown to cause gastric hypermotility, which was initiated by the ingestion of food and abolished by atropine. Gastric motility recorded by experimental balloon methods may at times augment duodenal hyperactivity in duodenal ulcer. Croton oil applied to the mucosa of the proximal colon, appendix and gallbladder, or distention of these same viscera, augments activity of the stomach in experimental animals. This has been confirmed in the case of the colon for patients exhibiting epigastric distress. Distention of the ureters above 35 mm. of mercury caused gastric inhibition or hypermotility, while gallbladder intracystic pressures above 50 mm. of mercury was followed by loss in gastric tone and changed type of contraction with hypermotility; furthermore, urinary bladder distention caused gastric inhibition. The sensory pathway for this last was in the presacral nerve. Youmans and his associates showed that gastric tonus and motility decreased during mild mechanical stimulation of the anal canal and rectum. This was not prevented by vagotomy or adrenal demedullation but disappeared after splanchnic or lumbar chain resection; moreover, a mediator reflexly released at the abdominal sympathetic nerve ends during rectal stimulation was found to enter the blood stream and inhibit the intestine. Also, under other circumstances, increased intrarectal pressure may inhibit gastric tonus and motility. Brody, Werle, Meschan and Quigley showed that, even after vagotomy, swallowing food produces transient gastric inhibition followed by phasic changes of greater magnitude. Thus it may be seen that experimental evidence has furnished an ample framework for the support of Dr. Welch's views.

DR. PAUL B. WELCH, Miami, Fla.: Dr. Oppenheimer has made reference to the inhibition of gastric motility by stimuli arising from extragastric viscera. This inhibition is not confined to the stomach but occurs throughout the entire digestive tube. Adynamic ileus frequently occurs with kidney colic, simulating acute mechanical intestinal obstruction. In previous studies of the viscerovisceral reflexes, with a balloon introduced in the colon, reflex disturbances in the colon motility were initiated by trauma to the right ureter. There was first inhibition of motor activity, followed by a prolonged and gross increase in muscle tone and peristalsis in the colon. It is probable that the same mechanisms operate to cause the distortions of the feeding reflex in the stomach as in the rest of the digestive tract.

Clinical Notes, Suggestions and New Instruments

A DEVICE FOR PROTECTING THE SKIN AND COLLECTING FLUID FROM FISTULAS

OR FOR KEEPING PENICILLIN SOLUTION IN CONTACT WITH A WOUND

LIEUTENANT COMMANDER GEORGE CRILE JR. (MC), U.S.N.R.

It is sometimes desirable to treat open wounds by application of penicillin solution. In cases when a penicillin saturated pack cannot be applied in such a way as to reach all the recesses or when the contour of the wound is such that it will not hold the solution, a device for sealing the entrance of the wound to retain the solution is of value.

In patients with external biliary fistulas the constant saturation of the dressings with bile makes the patient wet and uncomfortable. The same is true in the case of fistulas of



Fig. 1.—Suction apparatus for biliary fistula.

the small intestine, and in addition secretions digest the skin if it is not protected. There is often a need for a device which will collect the secretions and at the same time protect the skin.

The need for some way to collect the fluid and protect the skin was quite urgent in the case of a nearly complete small intestinal fistula. The skin was not as yet eroded and it appeared as though a piece of rubber dam could be cemented to the skin around the opening in such a way as to protect the skin and at the same time allow the secretions to be collected. A catheter was first placed through a tiny hole in the center of a broad piece of rubber dam. The rubber dam was next covered with rubber cement and the skin similarly treated. The dam was placed over the fistula in such a way as to allow the catheter to lie in the wound, and the other end was attached to a Wangenstein suction apparatus. The suction successfully carried away the juices and kept a negative pressure

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

against the rubber dam, so that it did not pull away from the skin. The patient was grateful to be able to lie in any position, to be dry and to have his skin protected from the painful digestion of the intestinal juices.

This device has been used on several small intestinal fistulas with satisfactory results. It is applicable to biliary fistulas if the patient is more comfortable than with the dressings wet or if it is desired to collect or measure the bile. It can also be used on any open wound or on any localized skin lesion in which it is desirable to keep a solution of penicillin in contact with the lesion for a considerable length of time. The penicillin can be introduced through the catheter, withdrawn periodically, and more of the solution inserted. If negative pressure and frequent irrigations are not required, the catheter can be eliminated and the penicillin injected by means of a small needle.

PRECAUTIONS

1. Make the hole in the dam very small and avoid wrinkling of the dam. Leaks tend to occur along wrinkles.
2. Cut several large holes in the catheter so that they will not become plugged with mucus or all lie against the side of the wound.
3. Clean the skin thoroughly with ether to remove all grease and moisture.
4. Put a very thin coat of cement on both skin and rubber and let both coats dry before applying the rubber. If applied wet or if the cement is too thick it will not stick well.

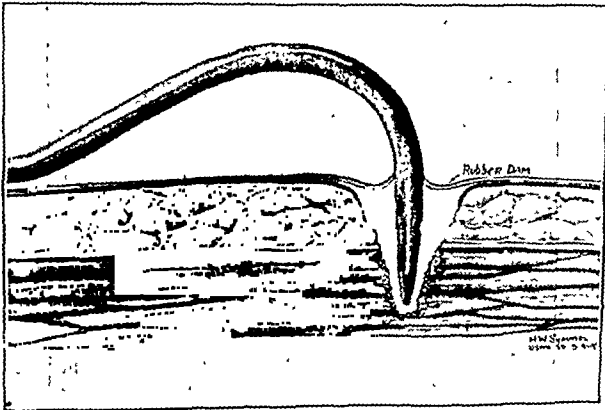


Fig. 2.—Suction apparatus used in open wound.

5. Secure the corners and sides of the dam with hemostats to prevent it from folding up when the cement is applied.
6. Be certain to eliminate all wrinkles which can act as potential leaks.
7. Attach suction immediately and never allow the suction to stop lest the fluid under pressure dissect the rubber up from the skin.

ADVANTAGES

1. The apparatus collects fluid for analysis or measurement.
2. It renders dressings unnecessary.
3. It can utilize Wangensteen suction instead of water or mechanical suction.
4. It keeps the patient comfortable and dry.
5. It allows the patient to change position.
6. It protects the skin.
7. The negative pressure appears to hasten the obliteration of an abscess cavity.

DISADVANTAGES

1. The device is not applicable after the skin is irritated and discharging serum.
2. It requires changing every five or six days as the old skin is desquamated.
3. It requires careful supervision of the suction apparatus.
4. It is not always applicable to wounds which are so small that the holes in the catheter are blocked by being in constant contact with all sides of the wound.
5. The skin is sometimes sensitive to rubber cement and blisters.

GASTROSTOMY IN POLIOMYELITIS

THEODORE F. HILBISH, M.D.

Surgeon, U. S. Public Health Service, U. S. Marine Hospital
FORT STANTON, N. M.

Pharyngeal paralysis associated with difficulty in swallowing is not unusual in bulbar poliomyelitis, but this condition seldom persists more than a few days. Wilson¹ states that "difficulty in swallowing is transitory and the worst is usually over in one week." Physicians treating large numbers of poliomyelitis cases have, however, experienced situations on rare occasions when pharyngeal paralysis has persisted well over the week.

It has been shown that if life can be sustained through the acute phase of the disease there is practically always a 100 per cent recovery of the pharyngeal muscles. As a rule tube feeding is not too difficult, but dangers associated with this procedure are always present and must be avoided whenever possible. The three main hazards are (1) aspiration of mucus or vomitus with resulting bronchial obstruction and sudden cessation of respiration, (2) choking attacks with temporary severe anoxemia and cyanosis and (3) excessive fatigue. In the case reported here it was the latter which necessitated a gastrostomy as a life-saving measure.

Review of the literature reveals a surprising absence of case reports on pharyngeal paralysis. Brahdry and Lenarsky² reported 5 cases in which pharyngeal paralysis persisted from twenty-one to seventy-one days. The longest time interval found was in a case reported by Miller,³ in which there was a complete inability to swallow for a period of eighty-six days. In all instances reported in the literature, nutrition was maintained by intravenous, subcutaneous and rectal routes, as well as by gastric gavage. After a thorough perusal of writings, not a single report was found in which a gastrostomy was performed to maintain nutrition. For this reason the present case was considered of sufficient interest to report.

REPORT OF CASE

History.—M. A. C., a white schoolgirl aged 12, was admitted on July 30, 1944 to the U. S. Marine Hospital at Fort Stanton, N. M., complaining of difficulty in swallowing. She first became ill on July 28, at which time she became nauseated, vomited and felt dizzy. The following morning she was seen by a physician because of pain in the head and teeth. Acute sinusitis was considered at that time because of purulent discharge observed from the sinuses. The following evening she was admitted to the hospital with the aforementioned complaints.

The past history was noncontributory. She had had measles, mumps and chickenpox with good recovery. She also had "acute food poisoning" at 6 years of age, following which her eyes had remained "weak." She had a tonsillectomy when 4 years of age but no other operative procedures.

The family history was entirely negative.

Examination.—On admission the patient was acutely ill and toxic. Her temperature was 101.6 F. and pulse rate was 120. There was pronounced nuchal rigidity, with loss of function of the anterior neck muscles demonstrated by complete inability to hold up the head when the shoulders were lifted from the bed. The patient had a decidedly nasal "twang" on speaking and there was a complete pharyngeal paralysis. Administration of liquids resulted in the return of these fluids through the nose. There was some evidence of rigidity of the paravertebral muscles and a diminution of the ankle and knee jerks bilaterally. Chest, heart and other systems were essentially normal. There was no evidence of other muscle involvement at the time of admission.

Laboratory Findings.—The blood count showed 5,000,000 red blood cells, 110 per cent hemoglobin, 12,800 white blood cells with 78 per cent neutrophils, and negative Kahn reaction. Urinalysis showed 1 plus albumin, a few blood cells and 20

Presented with the permission of the Surgeon General, U. S. Public Health Service.

1. Wilson, J. L.: Prognosis of Poliomyelitis and Treatment of Commonly Fatal Types, *J. Michigan M. Soc.* 42:955-958 (Dec.) 1943.
2. Brahdry, M. B., and Lenarsky, M.: Difficulty in Swallowing in Acute Epidemic Poliomyelitis, *J. A. M. A.* 103:229-234 (July 28) 1934.
3. Miller, L. A.: Paralysis of Deglutition and Respiratory Failure in Acute Anterior Poliomyelitis, *Arch. Pediat.* 56:339-346 (June) 1939.

to 30 pus cells. A spinal puncture, performed on July 31, revealed a slightly turbid fluid under normal pressure, while studies of this fluid demonstrated 1,250 cells, mostly polymorphonuclears, a 3 plus Pandy test and negative smear and culture for organisms. Spinal tap repeated three days later revealed the cell count to be down to 38 cells, with lymphocytes predominating. The spinal sugar was 62.5 mg. per hundred cubic centimeters and again smear and culture failed to reveal organisms. Repeated urine and blood tests were essentially normal except for gross blood in the urine on one occasion. The blood level for sulfadiazine was 15 mg. per hundred cubic centimeters.

Clinical Course and Treatment.—The patient's temperature rose to 104 F. the day following admission and the patient was irrational. Sodium sulfadiazine was administered on the strength of the laboratory report of 1,250 cells with cloudy fluid and no report of spinal sugar findings. Hematuria was noted the following day and the drug was discontinued. The diagnosis of poliomyelitis appeared to be well established by this time; consequently further sulfadiazine medication was not indicated.

The patient's course was very stormy during the first week of hospitalization. She was confused, disoriented and irrational. Constant attendance was necessary for restraint and for aspiration of the thick glairy mucus which continuously collected in her throat. Her temperature ranged from 99.8 to 104 F. Feeding was accomplished by intravenous and subcutaneous fluids.

The patient complained of pain in the right deltoid muscles on occasion. Muscle spasm was noted of the hamstring muscles, chiefly the right. Increasing evidence of respiratory difficulty was manifested in irregular respiration and transitory apnea. The symptoms suggested spinal involvement along with bulbar poliomyelitis, and arrangements were made to secure a Drinker respirator from the Carrie Tingley Hospital at Hot Springs, N. M., a distance of approximately 150 miles.

On August 4 the patient became cyanotic and developed considerable respiratory difficulty. Caffeine and other respiratory stimulants were administered without benefit. It was not until the patient could be placed in the Drinker respirator that relief and freedom from respiratory difficulty was achieved. She regained normal color and sank into a sleep of exhaustion.

Attempts were made during the first ten days to pass a Levine and Rehfuess tube, but in each instance obstruction was encountered at the lower end of the esophagus. Feeding was continued by intravenous and subcutaneous methods, the rectal route having proved essentially unsuccessful because of inability to retain fluids. The necessity for other means of administering nutrition became increasingly obvious. An ear, nose and throat specialist was called from El Paso, Texas, and a Levine tube was passed under direct vision after considerable difficulty. The patient was weak and exhausted after this ordeal and begged that it be not attempted again. The tube was retained four hours, when it was regurgitated. Again we were faced with the problem of feeding by the intravenous route, which was made difficult because the patient could not be removed from the respirator. Another specialist was called from Albuquerque and this time, after three hours of strenuous effort, a Miller-Abbott tube was passed, leaving the patient in poor condition and obviously unable to stand another such procedure. She had severe pain for twenty-four hours following the passage of the tube. No feedings were given during this interval. The Miller-Abbott tube finally had to be deflated to relieve her pain. Fifteen hundred cubic centimeters of a concentrate mixture containing approximately 3,000 calories was administered daily by the gastric route. The patient's condition improved rapidly and she started to regain her strength.

On August 11 she was removed from the respirator for a short time without experiencing too much difficulty. The time interval outside the respirator was increased steadily, though gradually, during the following days, and on August 14 she was completely removed from the respirator. The patient showed evidence of spasm of both groups of hamstring muscles and some weakness of the quadriceps femoris on the left side. Kenny treatment was begun and continued until spasm was gone. Also on August 14 the stomach tube was vomited and

gastric feedings were of necessity discontinued. She was then nourished by intravenous fluids, with amino acids added to the glucose. It became increasingly difficult to administer fluids by this route owing to sclerosis of the veins. The patient again showed signs of inadequate caloric intake and began to feel weaker and show obvious weight loss. She was now able to remain outside the respirator without respiratory decompensation, although her breathing was irregular when she was asleep.

On August 18 the patient's condition and the necessity for other means of feeding were discussed with the family. A gastrostomy was suggested, since the patient was still completely unable to swallow and since the patient's condition was favorable to allow the procedure at this time. With the family's consent a consultant from Albuquerque was called and a gastrostomy was performed under local anesthesia without difficulty. The patient was returned to her room in good condition and feedings were started immediately. The patient's response to adequate feeding was remarkable. She promptly regained weight and strength. Nine days after the operation the stitches were removed and a clean gastrostomy tube was reinserted. She continued to improve and on August 31 was able to swallow a small amount of fluid for the first time, but with considerable difficulty. The tube was left in place until September 10. By this time she was able to eat solids and drink liquids but had to take both types of food very slowly. Following the removal of the gastrostomy tube on the date mentioned the wound was apposed with flamed adhesive tape. The incision closed rapidly, without a sign of infection.

The patient continued to gain weight and strength and her muscles showed steady improvement. Her neck muscle function returned entirely and there was a rapid return of function to the hamstring muscles, although the hamstring and gastrocnemius muscles bilaterally were still tight. Likewise she still showed partial paralysis of the pharyngeal muscles and of the uvula. She was afebrile and felt fine when discharged from the Marine Hospital on September 20 to report at Carrie Tingley Hospital, where facilities were available for convalescent poliomyelitis care. She was seen at this institution on September 21 and allowed to return home, with instructions to take hot baths, twice daily followed by muscle stretching exercises and to start walking. She was hospitalized at Carrie Tingley Hospital on November 4 for muscle tests and exercises and was discharged on November 21, at which time she was able to walk without calcaneal or Trendelenburg limp. She was able to swallow more easily and seldom strangled.

At the present time the patient reports by letter that she is feeling well and is improving. There is some residual weakness of the left leg with $\frac{1}{2}$ inch difference in circumference as compared to the right leg. She is taking therapeutic exercises and muscle stretching maneuvers. She still experiences infrequent transitory pharyngeal "spasm" but states that she is able to eat at the regular rate. A complete palatal paralysis still persists on the left side.

COMMENT

As mentioned previously, this case, as far as could be ascertained from available literature, represents the first one of poliomyelitis in which a gastrostomy was performed. Some may question the advisability of the procedure, but at the time and with our facilities it seemed the wisest move. It is not intended to suggest a gastrostomy in cases with prolonged inability to swallow. However, after observing such remarkable recovery following the gastrostomy, one wonders if the operation might not be considered in cases in which extreme difficulty is encountered in passing a gastric tube. In view of the increasing and steady return of ability to swallow, it seems highly likely that the obstruction encountered was of a temporary nature, perhaps a "spasm" of the cardiac end of the esophagus. After all, it is known that spasm of numerous skeletal muscles occurs in this disease and it does not seem improbable that such an episode might occur in smooth muscles.

My transfer to another assignment precluded the opportunity for study of the lower esophagus with barium.

SUMMARY

A case was encountered in which a gastrostomy was performed for prolonged inability to swallow, associated with poliomyelitis.

ESCHERICHIA COLI MENINGITIS TREATED WITH
SULFADIAZINEMAJOR PAUL S. STRONG AND LIEUTENANT COLONEL JESSE E. EDWARDS
MEDICAL CORPS, ARMY OF THE UNITED STATES

Instances of meningitis due to the coliform group of organisms are sufficiently rare in adults to warrant the reporting of another case. The majority of the cases described have occurred in infants and children and have usually been associated with infections of the middle ear, the gastrointestinal tract, the urinary tract or the umbilicus.¹ Of 3,178 cases of meningitis due to all types of organisms, Neal² reported only 8 cases due to the coliform group. Stallworthy³ reported 2 cases in adults, one presumably coincidental with intracerebral hemorrhage and the other secondary to extensive suppuration of the liver and biliary tract.

In the case to be presented the meningeal infection resulted from an abscess secondary to a penetrating wound of the sacrum (fig. 1).

REPORT OF CASE

A white soldier aged 24 was wounded in the back by a bullet on June 6, 1944. Emergency first aid treatment consisted of a dry dressing over the wound of entry, morphine, tetanus toxoid and oral sulfadiazine. He was admitted to a general hospital on June 13 complaining of fever and severe pain in the low back region. Sulfadiazine was continued in a dosage of 1 Gm. three times a day. On the third hospital day the temperature fell to normal and the sulfadiazine was discontinued. There was a small amount of purulent drainage from the wound on June 19, but the bullet entrance had healed on the 21st.

The white blood cell count on admission was 5,000 per cubic millimeter, the hemoglobin was 95 per cent (Tallquist) and the

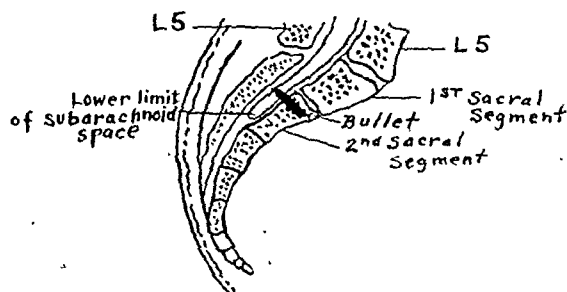


Fig. 1.—Relation of foreign body to subarachnoid space.

urine examination was negative. An x-ray of the lumbar spine and pelvis showed a bullet shaped opacity (0.6 by 2 cm.) in the region of the midportion of the second sacral segment (fig. 2).

On June 21, eight days after his admission to the hospital and fifteen days after he was wounded, the patient complained of severe headache, fever, nausea and vomiting. During the next twelve hours he became irrational, and signs of meningeal infection appeared. A lumbar puncture revealed cloudy fluid with 675 cells, 94 per cent of which were polymorphonuclear neutrophils. The spinal fluid sugar was 10 mg. per hundred cubic centimeters and on direct smear gram negative intracellular organisms thought to be diplococci were present.

Sodium sulfadiazine 5 Gm. was given intravenously, followed by oral sulfadiazine 2 Gm. every four hours. Although the temperature remained elevated, the patient showed considerable improvement at the end of eighteen hours. The improvement was not maintained, and during the next twelve hours he grew rapidly worse and became disoriented. At this time the etiologic agent was identified by cultural methods as *Escherichia coli* communis. Immediate surgical exploration of the healed bullet wound was done, although there was no evidence of local infection. A large subdural abscess was evacuated and a bullet measuring 0.6 by 2 cm. was found embedded in the sacrum and protruding into the subarachnoid space.

The bullet was removed, 100,000 units of penicillin powder was sprinkled into the cavity and a small rubber drain was inserted. The immediate postoperative course was characterized by considerable headache, backache and fever. Intensive and prolonged therapy with sulfadiazine, blood transfusions and intramuscular penicillin were given. The latter agent was used only after it was shown that the organism was slightly susceptible to its action.⁴ On the third postoperative day, pro-



Fig. 2.—Location of foreign body.

nounced improvement was evident. Convalescence was satisfactory except for the severe but transitory low back pain and a persistent diplopia. A follow-up made six months after the onset of his illness showed that the patient was perfectly well except for faulty vision in the right eye, photophobia and diplopia. Visual fields were full and normal and fundic examination was negative, but vision in the right eye was only 20/200 uncorrectable. It was believed that the patient had a postencephalitic syndrome secondary to the meningitis with damage to the primary optic centers.

BACTERIOLOGY

The organism cultured from the spinal fluid and the gram negative rod obtained from the abscess in the region of the sacrum gave identical cultural and biochemical reactions. On blood agar incubated for twenty-four hours at 37 C. aerobically, the colonies were large, raised, smooth, opaque, gray and nonhemolytic. The smears showed a short, plump, gram negative rod. They were nonmotile. On an eosin-methylene blue plate the

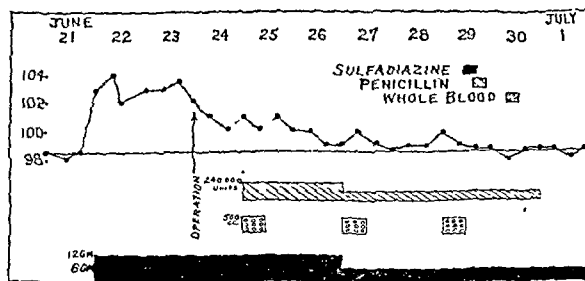


Fig. 3.—Clinical course and therapy.

colonies were of moderate size and smooth and they possessed a brilliant metallic sheen. There was no growth on Simmons citrate agar. The organism grew on Russell's double sugar slants, producing gas and acid in both slant and butt. The methyl red test was positive. Tests for indole production were positive. There was no liquefaction of gelatin. Milk was turned acid. Acid and gas were produced in glucose, lactose,

1. Barrett, G. S.; Rammelkamp, C. H. and Worcester, John: Meningitis Due to *Escherichia Coli*, *Am. J. Dis. Child.* 63: 41-59 (Jan.) 1942.
2. Neal, Josephine B.: Diagnosis and Treatment of Meningitis, *M. Clin. North America* 19: 751-769 (Nov.) 1935.
3. Stallworthy, K. R.: Meningitis Due to *Bacillus Coli*, *New Zealand M. J.* 42: 165-167 (Aug.) 1943.

4. Gladys L. Hobby (personal communication to the authors) also found that penicillin in large amounts has some effect on many of the gram negative organisms, especially the enteric group.

dulcitol, mannitol and maltose. There was no fermentation of sucrose. These cultural and biochemical reactions are characteristic of *E. coli communis*.

COMMENT

Sulfonamides are frequently used prophylactically in the treatment of battle casualties. Such therapy may serve to mask a persistent infection and later extension may occur without obvious local inflammatory changes. We believe that the course of this patient illustrated such a sequence of events.

There is considerable evidence that sulfonamide drugs are relatively ineffectual in the sterilization of purulent collections. In our case, although there was a definite response to the initial chemotherapy, recovery occurred only after adequate drainage of the focus and removal of the foreign body.

SUMMARY

As a result of a penetrating bullet wound in the region of the second sacral segment, an abscess formed which ruptured into the spinal subarachnoid space and produced an acute purulent meningitis. Intensive chemotherapy brought about temporary improvement, but recovery occurred only after surgical drainage of the abscess.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following statement.

AUSTIN SMITH, M.D., *Secretary.*

MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association convened at the Association headquarters on March 9, 1945. Those in attendance were Drs. David P. Barr, S. W. Clausen, Morris Fishbein, E. M. K. Geiling, Robert P. Herwick, James P. Leake, Perrin H. Long, Stuart Mudd, E. M. Nelson, W. W. Palmer, Elmer Sevringhaus, Austin Smith and Torald Sollmann. In addition to members of the headquarters staff there were present Drs. Eben J. Carey, Anthony C. Cipollaro and A. U. Desjardins from the Council on Physical Medicine, Mr. C. S. Ladd from the Council on Foods and Nutrition, Dr. Herman L. Kretschmer, President of the American Medical Association, Dr. J. J. Moore, treasurer of the Association, Dr. Ernest E. Irons, Secretary of the Board of Trustees, and Dr. Stanley Weld, Dr. E. M. Shanklin, Dr. L. Fernald Foster and Dr. John S. Bouslog from the Advisory Committee of the Cooperative Medical Advertising Bureau.

The following is an abstracted report of some of the more important discussions and actions:

Food and Drug Requirements for Adequate Directions on Label.—Some regulations provided by the recent amendments of the Food, Drug and Cosmetic Act were reviewed. It was apparent that the Food and Drug Administration is pursuing objectives held desirable by the Council, and no formal action was taken.

Promiscuous Use of Vitamins.—Discussion was given to recent experimental work which suggests that it is possible to give excessive doses of vitamins, particularly members of the B complex, in the presence of certain infections. In experimental animals it has been possible to increase the probability of developing paralysis and a fatal outcome in anterior poliomyelitis by increasing the intake of thiamine hydrochloride. Warnings have been offered that a number of virus infections have been made worse even by adequate, certainly by excessive, vitamin intake. Further, there is some evidence that there may be an antagonism between administration of members of the B complex and certain therapeutic preparations. Such findings indicate the need for further studies concerning vitamin therapy.

Cosmetic Creams Containing Estrogen.—Further consideration was given to this subject. Since the meeting, a report

on "Status of Cosmetics Containing Hormones" has been published in *THE JOURNAL* (June 16, p. 515).

External Use of Sulfonamides.—The external use of sulfonamide preparations was reviewed, and first hand as well as published information studied. Since the meeting a report on "Dangers from the External Use of Sulfonamides" has been published (*THE JOURNAL*, August 4, p. 1024).

Use of Council Name in Advertising of Nonaccepted Preparations.—Occasionally reference is made to the Council on Pharmacy and Chemistry and to the American Medical Association in such a way as to imply acceptance by or favorable opinion from these bodies when such is not the case. It was moved and adopted that, whenever the name of the Association or the Council is misused in relationship to the promotion of new drug products, the Secretary be automatically authorized to write requesting the discontinuance of such use.

A. M. A. Cooperative Medical Advertising Bureau.—Discussion was held with members of the Advisory Committee of the Cooperative Medical Advertising Bureau, and some of the joint problems were outlined. A committee was appointed to be available for questioning by and to provide assistance to the Cooperative Medical Advertising Bureau.

Radon Ointment.—The status of radon ointments, which are said to be radium emanation (radon gas) incorporated in ointment bases, was reviewed and the subject referred for joint study by the Council on Physical Medicine and the Council on Pharmacy and Chemistry.

Therapeutic Trials Committee.—Further discussion was given to the status of this committee. Since this meeting an informal conference has been held with representatives of industry chosen by the American Drug Manufacturers Association and the American Pharmaceutical Manufacturers Association and a brief account of this conference published (*THE JOURNAL*, July 28, p. 961).

Priority in Research.—The Council had been requested to devise a mechanism whereby individuals can record original contributions in research so that they might support claims for priority. The Council gave the matter careful consideration but considered it inexpedient at this time to undertake such a program.

Globin Insulin.—The status of globin insulin was reviewed, and it was agreed that the statement of actions and uses in N. N. R. should continue to serve as a guide in the preparation of the advertising claims offered for this substance.

Spanish and Other Translations of Council Publications.—This subject was again reviewed, but little progress was reported because of existing difficulties.

The Spread of Infectious Hepatitis by Contaminated Syringes and Needles.—The danger of the spread of infectious hepatitis by contaminated syringes and needles was discussed and a report authorized.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

PENICILLIN (See Supplement, to New and Nonofficial Remedies, 1944, p. 18).

The following dosage form has been accepted:

LAKESIDE LABORATORIES, MILWAUKEE—

Penicillin Sodium: 100,000 Oxford units in 20 cc. vials and 100,000 Oxford units in 20 cc. vials packaged with an accompanying 20 cc. vial of isotonic solution of sodium chloride.

SULFADIAZINE SODIUM (See New and Nonofficial Remedies, 1944, p. 199).

The following additional dosage form has been accepted:

SHARP & DOHME, INC., PHILADELPHIA

Sterile Solution Sodium Sulfadiazine 5% W/V: 50 cc. ampuls. Each 50 cubic centimeters contains sodium sulfadiazine 2.5 Gm. and distilled water q. s.

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SATURDAY, SEPTEMBER 15, 1945

THE PRESIDENT OUTLINES A PROGRAM

On September 6 President Harry S. Truman sent to the Congress an outline of the executive and legislative program which he considered desirable. He concluded his presentation:

I shall shortly recommend a national health program to provide adequate medical care for all Americans and to protect them from financial loss and hardships resulting from illness and accident. I shall also communicate with the Congress with respect to expanding our social security system and improving our program of education for our citizens.

In the course of his presentation the President referred to several projects of specific interest to the public health. Many of the war agencies are carrying on functions related to medicine and the public health. The President urged that the Congress not yet adopt a resolution proclaiming a termination of the war or the termination of the emergency or the cessation of hostilities, since such a resolution would automatically cause the death of many war powers and wartime agencies before we are ready. Obviously the physicians, the medical students and the premedical students now held by the legislation declaring a war emergency would be released from such service within six months of the time of the declaration of the end of the emergency. In the absence of such a declaration the existing war agencies, including particularly the medical departments of the Army and Navy and the United States Public Health Service, should do their utmost to obtain the release of as many of these personnel as possible at the earliest possible moment in order to meet a gradually developing emergency in the provision of medical service to the American people.

The President has urged, as has already been noted, extension of the Selective Service to permit the induction of men between the ages of 18 and 25 for a maximum service of two years. Unless some provision is made for filling our universities and colleges with men in the premedical, preengineering, pre dental, prepharmaceutical and similar courses, our country will find itself in a grievous situation for the training of scientists even before 1948.

The President urged on the Congress the early adoption of legislation for the establishment of a single federal research agency. He recognized that science cannot be dictated to or regimented. During the time necessary to organize a national research agency, he requested the Office of Scientific Research and Development and the Research Board for National Security to continue their work.

The confusion that prevails in the disposal of surplus property is more than even the most radical of newspapers has been able to reflect. Physicians are coming out of the service who desire to avail themselves of surplus property in order to reestablish themselves in medical practice. Hospitals, which have deteriorated in the quality of their service during the war because of inability to obtain new equipment, are anxious to obtain such surplus property at the earliest possible moment. The President admitted the confusion that prevails and urged the appointment of a single administrator, who may be able to bring some order out of the chaos and hasten the disposal of the billions of dollars of surplus property, much of which is related to the maintenance of health and the care of the sick.

Reform of the medical care now available in the Veterans Administration has been repeatedly indicated by a series of articles in lay and medical periodicals. The President recommended that the Congress give prompt consideration to the recommendations which had been made by the Veterans Administration for the purpose of clarifying and liberalizing the provisions relative to hospital and medical care. In a recent report Mr. Bernard Baruch suggested that the administration and delivery of medical service to veterans be completely separated from those functions that concern compensation, pensions and insurance provisions. This would seem to be well nigh a necessity as the first step in improving the quality of medical service given to the veterans.

As postwar construction projects, the President mentioned particularly the necessity for hospitals and health centers. Thus he said:

The Congress has also been giving consideration to legislation with respect to the construction of hospitals and health centers throughout the country. . . . The federal government must continue to recognize its obligation to maintain and improve the health of the nation by providing federal grants where necessary for the construction of hospital and health centers.

These citations are but a meager indication of the innumerable problems related to the health and medical care of the people of the United States that will concern the Congress at this session. The medical profession must be alert to the legislative proposals that will be developed by the Congress in response to the suggestions of the President. Translation of these suggestions into legislation may introduce innumerable features of fundamental importance to the future of the practice of medicine in our country.

VIRUS MYOCARDITIS

A filter-passing agent that produces lethal myocarditis in anthropoid apes, mice, guinea pigs and rabbits has been described by Helwig and Schmidt¹ of the A. A. F. Regional and Convalescent Hospital, Miami Beach, Fla. In November 1944 the body of a well nourished adult male gibbon was brought to their laboratory. The animal had always been well, until one morning it suddenly dropped dead without previous indication of illness. The animal had not shown paralysis. Necropsy revealed a dilated heart, pericardial effusion, pulmonary edema and a bilateral hydrothorax. Microscopic examination showed an intense diffuse myocarditis and pulmonary edema, the remaining viscera being normal. Six weeks later a 5 year old well nourished male chimpanzee from the local Anthropoid Ape Research Foundation also died suddenly. The previous history also had been negative, and the same gross and microscopic findings were recorded as with the gibbon.

Fluid from the chest cavity of this chimpanzee was inoculated intravenously, intracranially or intraperitoneally into a series of mice. The mice developed paralysis by the fifth day and were all dead by the sixth day. On microscopic examination all showed acute myocarditis. As a control, chest fluids from 2 chimpanzees dying from other causes were similarly inoculated into mice, none of which developed symptoms or showed lesions of the myocardium when later killed.

The hearts from the first series of injected mice were ground in ascitic fluid and used for intravenous and intraperitoneal inoculation into a second series of mice. Half of the second series developed lethal myocarditis. Heart suspensions from the lethal cases were similarly injected into a third series of mice, all of which developed lethal myocarditis. By this technic the causative agent has been propagated through the fifth mouse passage with continual increase in mouse pathogenicity. The causative agent will pass through a Seitz or Berkefeld filter and will also produce interstitial myocarditis in guinea pigs and rabbits. Guinea pigs and rabbits, however, usually do not show an accompanying paralysis.

The virus is present in infective concentration in the nasal washings of inoculated mice. Mice may be readily inoculated by intranasal instillation. The agent is readily cultivated in embryonated hen's eggs and will stand heating to 56 C. for twenty minutes. It is completely destroyed, however, by heating to 70 C. for a similar time.

Demonstration of the viral etiology of anthropoid myocarditis is clinically interesting, since cases of this disease are strikingly similar to those of sporadic cases of human acute interstitial myocarditis of unknown

etiology. As far as known, the anthropoid myocarditis virus has not been previously described. The nearest approach to this virus is apparently the rheumatic endocarditis virus recently described by MacNeal and his associates² of the New York Post-Graduate Medical School. Therapeutic and electrocardiographic studies of experimental viral myocarditis of rabbits and guinea pigs are now in progress in the Miami Beach Laboratory.

EARLY OUTBREAKS OF INFANTILE PARALYSIS

In 1843 George Colmer¹ reported the occurrence in the fall of 1841 of some 10 cases of paralysis in teething children in the parish of West Felecia, La. This report has been regarded as the first record of an epidemic of infantile paralysis. Apparently, a few years earlier, in 1836, Sir Charles Bell, the celebrated anatomist and experimenter, inserted in one of his case reports² the following note about an epidemic fever with wasting of limbs among children on the island of St. Helena:

A lady, whose husband was the English clergyman at St. Helena, consulted me about her child, who had one leg much wasted in its growth. In conversing about the illness which preceded this affection in her little girl, she mentioned that an epidemic fever spread among all the children in the island about three or five years of age; and her child was ill of the same fever. It was afterwards discovered that all the children who had the fever, were similarly affected with a want of growth in some part of their body or limbs! This deserves to be inquired into.

So far, no further reference to the St. Helena epidemic has been found in the writings on infantile paralysis.

Beginning in the early part of the last century the clinical reports of cases of infantile paralysis, singly and in small groups, steadily increased in the English, German and French literature. In Norway cases were observed as far back as 1820. In the first reports by orthopedic surgeons on clubfoot mention is commonly made of paralysis in childhood following acute illness. Monteggia³ in 1813 described the disease in Italy. By 1850 it had become fairly well known that adults are not exempt. Two other early outbreaks may be mentioned: Black⁴ observed 6 nonfatal cases in children from 1 to 8 years of age in Cambridge, Ohio, in the summer and autumn of 1858. Cambridge then had a population of about 1,500. Black states definitely that he did not see any other cases later. The cases he observed are well described. He speaks of the dis-

2. MacNeal, Ward J.; Blevins, A.; Slavkin, A. E., and Scanlon, H.: *Science* **101**: 415 (April 20) 1945.

1. George Colmer's Report of an Outbreak of Epidemic Poliomyelitis in 1841, editorial, *J. A. M. A.* **127**: 924 (April 7) 1935.

2. Bell, Sir Charles: *The Nervous System of the Human Body, as Explained in a Series of Papers Read Before the Royal Society of London, with an Appendix of Cases and Consultations on Nervous Diseases*, ed. 3, London, 1836, p. 434.

3. Monteggia, G. B.: *Istituzione chirurgicale*, ed. 2, 1813.

4. Black, J. R.: *Cases and Observations from my Note-book*, Cincinnati *Lancet and Observer* **4**: 15, 1861.

1. Helwig, F. C., and Schmidt, E. C. H.: *Science* **102**: 31 (July 13) 1945.

ease as "a somewhat rare affection, infantile paralysis." In 1863 Bull⁵ in Norway reported to the health authorities 14 cases with three deaths, which first were regarded as cases of meningitis but subsequently found to be cases of typical infantile paralysis.

The virus of infantile paralysis was widely disseminated long before the advent of the large epidemics which have been occurring since about 1885; the small outbreaks recorded by Bell, Colmer and others may be regarded as forerunners of the widespread, serious epidemics that confront the world today.

THE DISCHARGE OF MEDICAL OFFICERS

From the Office of the Surgeon General comes official announcement that some 13,000 to 15,000 medical officers will be discharged by the Army before Jan. 1, 1946. At present every possible effort is being made to rotate the men now in the service in order to return men now overseas as soon as possible. Authorities also want to give opportunity for practice in their specialties and for education in specialties to men who have had service thus far primarily as battalion surgeons.

Almost daily THE JOURNAL receives letters from physicians in the service who complain of wrong assignment, of failure to be promoted, of lack of sufficient duties to keep them fully occupied or for a variety of other causes. Regularly these statements have been sent, in the vast majority of instances without the name of the physician who wrote, directly to the Office of the Surgeon General, and every effort has been made to secure adjustment.

Beginning with next week THE JOURNAL will publish the names of medical officers discharged from the service as rapidly as they can be supplied by the Offices of the Surgeon General and the Adjutant General of the Army. Already there is a backlog of some several thousands of names of men who have been discharged for various reasons beginning almost with the date of the attack on Pearl Harbor. This published list will be arranged alphabetically by states and will include the name of the officer, the rank in the service and the place at which he was inducted into the armed forces.

Through the Bureau of Information of the American Medical Association medical officers are being supplied at the time of discharge with information regarding licensure and reciprocity in the various states, the names of responsible officials, the facts regarding facilities for practice, and the numbers of physicians in various counties as well as other information which is gradually being developed through this bureau. The Bureau of Information of the Association was established not only to aid the returning medical officer in relocation but also to encourage redistribution of physicians in order

to meet the needs of communities that are without sufficient medical personnel. The Bureau will attempt to supply returning medical officers with information and advice. Requests from medical officers are welcome.

Current Comment

THE HERSHEY CONFERENCE ON PSYCHIATRIC REHABILITATION

The Hershey (Pa.) conference (Feb. 1, 2 and 3, 1945) was planned to discover ways of increasing the resources of psychiatry and general medicine to meet the needs of men returning from the armed services with neuropsychiatric disabilities other than psychosis.¹ It was estimated that the number of men with such conditions may be considerably over 2,000,000: some 1,500,000 neuropsychiatric rejectees, 600,000 neuropsychiatric dischargees and 200,000 not so labeled but in whom a neurotic illness underlies or seriously complicates organic illness. The conclusion reached by the conference was that the recognized need for professional help in overcoming psychiatric handicaps is already too great to be met with the resources at hand and will increase sharply with general demobilization, with the stress of adjustment to civilian life and especially with deterioration of employment opportunities. The conference has recommended several measures, among them that the psychiatric training of picked medical personnel in military installations be continued and expanded. Facilities other than hospital care for the treatment of men with psychoneurotic reactions should be further developed in military installations in the hope that many more men can be retained in service for treatment which is not at present available in civilian life. The committee also recommended that the National Committee for Mental Hygiene should intensify its efforts to arouse and inform the public, and in particular the church, the schools, industrial management and labor, as to the needs and care of veterans with psychoneurotic reactions and to promote the training and efficient use of psychiatric social workers. Physicians engaged in the practice of general medicine need education on the neuroses and their care. For the graduate training of internists and general medical men already introduced to, or interested in, psychiatric aspects of medicine as a result of their war experience, fellowships should be made available, and these stipends should be large enough to attract men already well equipped professionally and with family responsibilities. Graduate training for comprehensive medical care would be facilitated if the American Boards of Internal Medicine and Pediatrics credited to a limited extent appropriate experience in psychiatry and if the American Board of Psychiatry and Neurology reciprocally credited appropriate experience in internal medicine or pediatrics. Training for the specialty of psychiatry should give increasing attention to the treatment of the psychoneuroses as they present themselves in both psychiatric and general medical practice.

5. Leegaard, C.: Die akute Poliomyelitis in Norwegen, Deutsche Ztschr. f. Nervenh. 53: 145, 1914.

1. The National Committee for Mental Hygiene, Inc., New York, 1945: Report of the Hershey Conference on Psychiatric Rehabilitation. Medicine and the Neuroses.

MEDICINE AND THE WAR

NAVY

HEALTH CONDITIONS IN THE NAVY

Statement by Vice Admiral Ross T. McIntire
(MC), U.S.N., Surgeon General

HOSPITAL FACILITIES

Despite the surrender of Japan, the number of patients in naval hospitals within the continental limits will increase during the next few months. This is the logical result of the steady evacuation to the United States from Pacific areas of hospitalized personnel.

Although the normal capacity of statewide naval hospitals is 72,531 at present, the use of double-deck beds and adoption of other emergency measures has sent the actual capacity beyond the 100,000 mark. For the week ended August 15 the patient census was 89,798.

Today there are in operation, within the continental United States, fifty-four naval hospitals. Forty are general hospitals, thirteen are for convalescent care and one serves chiefly as a distribution hospital. With the possible exception of the last named institution, it does not appear that any of these fifty-four can be released for at least eight more months. When the time comes, our so-called special, or convalescent, hospitals will be the first to be relinquished, since all thirteen are housed in privately owned buildings which were volunteered to the Navy.

A new naval hospital at Houston, Texas, of permanent construction is scheduled to go into commission the first of next year. It will accommodate 1,000 patients.

Plans are well under way to establish a 1,500 bed hospital at Camp Wallace, Texas, utilizing facilities which have been turned over by the Army. These include a dispensary of 350 beds and several barracks buildings. Another army transfer is Camp White, in Oregon, which is due to be established within the next week with 1,500 beds. Still another transfer is Camp Phillips, Kansas, which we expect to get from the Veterans Administration and transform into a 1,500 bed naval hospital.

The Veterans Administration, on the other hand, will receive from the Navy three hospitals as soon as they can be released. They are the 1,000 bed facility at Dublin, Ga., which was commissioned last March, and two smaller ones in Texas which have not yet been constructed, one at Austin, which will be of permanent construction and have a normal capacity of 500 beds, and the other at Marlin, to consist of both permanent and temporary construction and have a capacity of 500.

Other postwar hospital plans, subject to change, call for:

A 500 bed hospital at Beaufort, S. C., to replace the outdated U. S. naval hospital at Parris Island, S. C., which is of World War I vintage.

A 1,000 bed hospital at St. Alban's, L. I., N. Y., to serve as the main institution of its kind in the Third Naval District, taking the place of Brooklyn Naval Hospital.

Another new plant of the same size to fulfil the same purpose for the San Francisco Bay area.

Investigation of the need for establishing, probably in the central part of the country, a naval hospital for psychotic (insane) patients, having a capacity of 1,500 patients.

Study of the need for a permanent tuberculosis treatment center on the East Coast. Pulmonary cases, at present, are sent to the U. S. Naval Hospital, Sampson, N. Y., which is an emergency wartime facility of temporary construction.

EVACUATION OF NAVAL PATIENTS

Reports to the Bureau of Medicine and Surgery indicate that nearly 15,000 naval patients, including Marines, remain to be returned to this country from Pacific areas. Most of these are in Hawaii and the Marianas. They are distributed among twenty hospitals, with a relatively small number in transit aboard naval hospital ships.

Approximately 1,800 are being returned to the mainland weekly by surface ship and plane. At this rate the evacuation task should be completed by mid-October. This does not mean that it will then be possible to roll up our overseas hospitals. Many eventually will be disestablished, but others will have to be retained indefinitely to serve the continuing needs of the Navy. In fact, seven more are now in process of being set up: four fleet hospitals and one base hospital on Okinawa and two base hospitals in the Marshalls.

SPECIAL TREATMENT CENTERS

A sizable proportion of naval patients, particularly those suffering combat wounds, are under treatment at the special centers that have been created at certain of the naval hospitals.

During the week ended August 22, 937 amputees were in the wards of Philadelphia and Mare Island naval hospitals. For the same period Philadelphia had 47 blind patients and 483 deaf patients under treatment and rehabilitation. A total of 796 plastic surgery patients were in the wards at Bethesda, Md., Oakland, Calif., St. Alban's, N. Y., and San Diego, Calif. In the neurosurgery centers at the same four hospitals 1,331 patients were aboard.

Tuberculous patients under treatment at Corona, Calif., for the same week totaled 954, and there were 603 at Sampson, N. Y. Corona, along with Dublin and Palm Beach, also is a treatment center for rheumatic fever.

Since Pearl Harbor, amputation cases have totaled approximately 2,300, blindness 190 and deafness 3,100.

HEALTH OF THE NAVY

As the result of a combination of many factors, not the least of which was Providence, the Navy has come through in splendid shape with regard to conservation of manpower and the saving of life. The fact that 97 out of every 100 men wounded survived may be attributed to the adequate provision of whole blood and the shock preventing blood derivatives; to swift and efficient evacuation, most dramatically by air, to rear hospitals; to the high standards of personnel and equipment possessed by these hospitals; to the gains in knowledge that were made both in the prevention and in the treatment of wounds, injuries and disease; and, finally but far from least, to the skill and labor of our doctors, nurses and hospital corpsmen.

At home there was not a single epidemic of major proportions among naval personnel. Overseas the early problems of malaria and filariasis responded swiftly to rigid sanitary measures. With respect to these two infections, it is significant that the U. S. Marine Barracks at Klamath, Ore., a special activity established last year to recondition an alarmingly large number of Marines who fell prey, is now being utilized as an ordinary convalescent, or retraining, center because the problem which it was set up to combat is virtually solved.

Number One cause for admission to Navy sick lists, as well as for medical discharge, is mental disease. This includes not only the psychoses but the various psychoneuroses and lesser conditions which are completely curable in most instances. During the war years, from January 1942 through June of this year, 25.8 per cent of all naval medical discharges were neuropsychiatric cases. For the first half of 1945 the figure was 31 per cent. In 1944 mental diagnoses accounted for a number of cases which was only 1.4 per cent of total naval strength. In 1944 also the rate of neuropsychiatric admissions ascribed to naval service was one-half that in the existed prior to enlistment category. Another heartening development was that neuropsychiatric discharges for the first half of this year showed a 2 per cent decrease compared with 1944. Sixty-five per cent of naval psychotic patients made recoveries to the point where they may be discharged from hospitals in three months, an additional 15 per cent in the next three months.

NAVY TO RETURN V-12 STUDENTS TO INACTIVE DUTY

Approximately 8,500 students in the Navy V-12 Program pursuing medical, dental, theological, premedical, predental and pretheological training will start returning to inactive duty on November 1. The remaining 25,500 students in the Navy V-12 Program will either graduate or continue their training in college as apprentice seamen on active duty. Final disposition of all students in the program will be made by June 1946.

As previously announced, V-12 training at 69 of the 124 colleges and universities throughout the country with V-12 and NROTC units will terminate on November 1. Training will continue at 42 NROTC units and 13 V-12 units in the program and at 10 newly established NROTC units.

Approximately 5,700 medical and 1,450 dental students will remain on active duty until the end of the semester now current or starting before November 1. Another 1,500 V-12 students entering medical or dental school this fall will remain on active duty for one term. Medical and dental students will be returned to inactive duty as enlisted men and will subsequently receive probationary commissions in the Naval Reserve and be retained on inactive duty.

A total of 250 theological and 95 pretheological students will return to inactive duty as enlisted men at the end of the academic term now current or starting before November 1. Later those eligible will receive probationary commissions as ensigns in the Naval Reserve and be retained on inactive duty.

There are 1,056 premedical and predental students in the program who will return to inactive duty as apprentice seamen at the end of the current academic term on November 1.

V-12 trainees now enrolled in the NROTC or who are scheduled to be so enrolled on or before November 1 will be retained under instruction on active duty until June 1946 unless they become eligible for commissions or discharge from the service at an earlier date. Students specializing in engineering will continue their training after November 1 in the Navy V-12 Program as scheduled. Marine Corps students in the V-12 Program will continue their training after November 1.

Students in the Naval Aviation Preparatory Program who are either in college training now or who are scheduled to enter the program on or before November 1 will be retained under instruction on active duty.

MEDICAL STATISTICS DIVISION

In line with the reorganization of various divisions of the Bureau of Medicine and Surgery, a Medical Statistics Division has been established which requires the transfer to it of functions and personnel from the former Medical Statistics Branch of the Preventive Medicine Division.

The new division consists of (a) an Office of the Chief of Division, (b) a Statistical Planning and Analysis Branch, (c) a Statistical Processing Branch and (d) a Statistical Publications Branch. The chief of the division will be responsible to the chief of the bureau for the performance of all functions assigned to the Medical Statistics Division.

The Statistical Planning and Analysis Branch will determine medical statistical needs, carry out statistical projects, prepare statistical reports and publications, provide a statistical consulting service and maintain liaison with other military and civilian agencies.

The functions of the Statistical Processing Branch will be to collect, process, compile and tabulate medical statistics from naval activities and, where necessary, from other military and civilian agencies. To carry out these functions the branch will consist of (a) an Editing and Coding Section, (b) a Machine Processing Section, (c) an Annual Report Section, (d) a Monthly Report Section and (e) a Miscellaneous Reports Section.

The Statistical Publications Branch shall prepare, edit and review statistical reports and publications and shall consist of (a) an Editorial Section, (b) a Drafting Section and (c) a Copy Preparation Section.

NAVY AWARDS AND COMMENDATIONS

Commander Richard S. Silvis

The Silver Star Medal was recently presented to Comdr. Richard S. Silvis, formerly of Washington, D. C. The citation accompanying the award read "For conspicuous gallantry and intrepidity in action against the enemy Japanese forces while serving as surgeon of a Marine division on Iwo Jima, Volcano Islands, from Feb. 19 to March 16, 1945. At 2:20 on the morning of March 7, owing to an unforeseen number of incoming casualties urgently requiring whole blood, the supply at the division field hospital became depleted. Commander Silvis personally undertook the vital task of obtaining an additional supply. Just at this critical time an air raid alarm was sounded and all ships in the harbor started making smoke, reducing the visibility to zero. In coordination with the air raid alarm, the Japanese began dropping mortar shells. Because of the impenetrable smoke and darkness the road was indiscernible, but Commander Silvis, with utter disregard for his personal safety, walked in front of the vehicle, feeling his way by the ruts, guiding the driver by verbal commands. Arriving at his destination he obtained the vitally needed whole blood and retraced his steps through the darkness; the blood was immediately used, thereby saving many lives. His heroic conduct was in keeping with the highest traditions of the United States Naval Service." Dr. Silvis graduated from the University of Nebraska College of Medicine in 1931 and entered the service June 26, 1931.

Captain Charles P. Archambeault

A Gold Star in lieu of a second Bronze Star medal was recently presented to Capt. Charles P. Archambeault, formerly of Washington, D. C. The citation accompanying the award read "For meritorious achievement in connection with operations against the enemy while serving as surgeon for a Marine division during the planning, training and assault phases of the campaign for Iwo Jima, Volcano Islands, from Oct. 31, 1944 to March 16, 1945. During the planning and training phases of the operation Captain Archambeault's careful supervision, high ability and unceasing efforts were in great degree responsible for the unsurpassed health of the division's troops and for the timely and efficient preparations made to insure their continued health during the campaign. Landing on Iwo Jima under heavy fire and making frequent trips to the most forward aid stations, he unhesitatingly and without pause gave himself to the task of providing the best medical care for the wounded and for protecting the health of the troops. His efficient, wise and forceful leadership produced an outstanding record of medical care for the men and was instrumental in the magnificent success of the operation. His conduct throughout was in keeping with the highest traditions of the United States Naval Service." Dr. Archambeault graduated from Albany (N. Y.) Medical College in 1918 and entered the service Nov. 12, 1920.

Lieutenant Richard H. Wilcox

Lieut. Richard H. Wilcox, formerly of Pendleton, Ore., was recently awarded the Bronze Star. Commanding a medical company attached to the Marine 5th Amphibious Corps on Iwo Jima "he demonstrated exceptional qualities of leadership and resourcefulness in overcoming the difficulties of terrain and harassing enemy artillery fire to establish his medical company for the reception and treatment of battle casualties within a period of twenty-four hours." Dr. Wilcox graduated from the University of Louisville School of Medicine in 1934 and entered the service Oct. 19, 1942.

Lieutenant Commander Daniel Rakov

The Legion of Merit was recently presented to Lieut. Comdr. Daniel Rakov, formerly of Maybrook, N. Y. The award was given for his service, beyond the call of duty, while serving as medical officer on the U. S. S. *Suwannee*, Oct. 25-28, 1944, during the invasion of Leyte. Dr. Rakov graduated from Syracuse University College of Medicine in 1922 and entered the service Feb. 22, 1943.

ARMY

PROFESSIONAL TRAINING OF REGULAR ARMY
MEDICAL CORPS OFFICERS

During the period of the emergency it has been necessary to place the bulk of Regular Army Medical Corps officers in administrative positions in the major commands of the Army. This necessary procedure has caused a shortage of adequately, professionally trained Regular Army Medical Corps officers to take up the care of the Army sick and wounded on the release of A. U. S. officers to civilian life.

In order that the Medical Department may be prepared to continue the excellent professional care of the sick and wounded in army hospitals, the Surgeon General has requested the chief of staff to authorize courses in professional training for Regular Army Medical Corps officers. This request has been approved, and a plan of training officers being relieved from administrative or other assignments where professional experience was not available has been developed and placed in operation. This plan calls for the assignment of Regular Army Medical Corps officers to installations where courses in professional training, eventually leading to board certification, is to be carried out. This plan calls for training, not only in military medical installations, but in leading civilian installations. Representatives of all major forces concerned have contributed to this plan, and officers assigned to any of these forces are eligible for the professional training.

This plan has been put into immediate operation in order that fully qualified Regular Army Medical Corps officers may be available to replace the presently highly qualified A. U. S. officers who are to be released in the present demobilization program and who are at present holding the top professional positions in army hospitals.

The Surgeon General is insistent that the noteworthy record of care of the sick and wounded in this war be maintained, and for this reason the far reaching plan which he has prepared places foremost the professional qualifications and continued professional training of the Medical Corps officers. It is the sincere hope of the Surgeon General that all Medical Corps officers of the Army of the United States give earnest consideration to a career in the Regular Army, and he feels that with the development of his present plan excellent opportunity for professional advancement will be afforded to all Medical Corps officers.

CAPTAIN HELEN W. BRAMMER
AWARDED BRONZE STAR

Capt. Helen W. Brammer, formerly of St. Ansgar, Iowa, was recently awarded the Bronze Star for meritorious achievements in connection with military operations in North Africa and Italy. Describing her accomplishments from February 1943 to July 1944 the citation pointed out that, "as chief nurse, Captain Brammer regardless of personal sacrifice organized and administered without adequate assistance the nursing services necessary to operate the hospital. With patience, resourcefulness and leadership she aided members of the nursing service in the proper handling and care of the sick and wounded. During periods when her hospital was treating patients far in excess of its normal capacity she contributed materially to the success of the station hospital in rendering the highest possible medical services to the armed forces of the United States." Formerly with the University of Iowa School of Medical and Surgical Supervision, Captain Brammer has been overseas since Jan. 14, 1943.

WOUNDED KEEP TRACK OF OLD UNITS
THROUGH "OUTFIT" MAGAZINE

Wounded personnel of the Army in hospitals throughout the United States are keeping track of their old outfits and comrades through the medium of *Outfit Magazine*, a publication of the Information and Education Division, Army Service Forces. The magazine is published weekly by the New York Branch, Information and Education Division, and consists of sixteen pages of news and pictures about army units at present over-

seas. It has provided a link between the hospitalized casualty and his original unit.

The first issue of *Outfit Magazine* was distributed in United States hospitals in November 1944. Since then the magazine has established bureaus consisting of one officer and enlisted assistants in every overseas theater. Each issue is distributed free to wounded veterans and consists of news material, grouped by theaters, of units ranging from divisions down to companies.

106TH STATION HOSPITAL AWARDED
UNIT PLAQUE

The 106th Station Hospital, a unit of the Peninsular Base Section, was recently awarded the Meritorious Service Unit Plaque "for superior performance of exceptionally difficult tasks and outstanding devotion to duty." Col. Charles F. Fisher, formerly of Clarksburg, W. Va., is commanding officer of the 106th Station Hospital.

ARMY AWARDS AND COMMENDATIONS

Major General George C. Dunham

The Distinguished Service Medal was recently awarded to Major Gen. George C. Dunham of Washington, D. C. The award was conferred on General Dunham by the Surgeon General of the Army, Major Gen. Norman T. Kirk. The citation, stressed the fact that General Dunham—called in an American Hospital citation the 'World's Greatest Bug Hunter'—has personally directed the Inter-American war against disease.

"Spending much of his time supervising field workers he directed the establishment of hundreds of health centers, clinics and medical posts which provide preventive and therapeutic services. Through General Dunham's performances in discharging duties of great responsibility, large populations in other Americas have benefited from expanded health and sanitation facilities. Standards have been raised and important forward steps have been taken in cooperative effort toward the economic development of the hemisphere."

The citation also recalled that it was General Dunham who "originated and developed a broad principle which was applicable to republics with differing problems, sources and governmental structures." It gave him full credit for negotiating basic agreement for the Institute of Inter-American Affairs, an agency of the Office of Inter-American Affairs, which brought about "a comprehensive public health program in the other American republics."

General Dunham graduated from the University of Oregon Medical School, Portland, in 1914, entered the Army Medical Corps in 1916 and graduated from the Army Medical School in 1917.

Colonel Achilles L. Tynes

The Legion of Merit was recently awarded to Col. Achilles L. Tynes, Washington, D. C. According to the citation "As Chief of the Hospital Construction Branch, Hospital Division, Office of the Surgeon General, from September 1943 to February 1945 he displayed unusual foresight and excellent judgment in supervising the development and application of planning standards for the entire fleet of twenty-nine Army hospital ships and for hospital facilities on troop ships. His skillful work was a major factor in expediting the conversion of many merchant ships to this important war service, making it possible to provide high standard medical care near forward combat areas. At the same time he guided the planning, building requirements and construction standards of the hospital system within the continental United States during a period of tremendous expansion. He rendered services that contributed materially to the efficiency of the Army's medical service." Dr. Tynes graduated from the University of Virginia Department of Medicine, Charlottesville, in 1930 and entered the service June 16, 1930.

Major Douglas P. Head

Major Douglas P. Head, formerly of Minneapolis, was recently awarded the Bronze Star for his research in connection with the detection and treatment of peptic ulcers in the Mediterranean theater. Describing Major Head's meritorious achievements in North Africa and Italy from May 15, 1943 until cessation of hostilities there, the official citation stated that "during this period Major Head contributed in large measure to the development of policies to govern the detection, diagnosis, treatment and disposition of peptic ulcer in the Mediterranean Theater of Operations. As a result of his work the theater's handling of such cases was commended by the civilian consultant to the Secretary of War. In addition, as co-author of a monograph on theater experience with the disease Major Head contributed to an outstanding compilation of facts which was a model on which policies in respect to peptic ulcer in the armed forces of the United States were based." Dr. Head graduated from the University of Minnesota Medical School, Minneapolis, in 1927 and entered the service Feb. 16, 1942.

Colonel Wilford F. Hall

The Legion of Merit was recently awarded to Col. Wilford F. Hall, formerly of Bridgeport, Conn., for "service as chief of the Personnel Division, Office of the Air Surgeon, from February 1942 to February 1943. Following the declaration of war it immediately became apparent to him that the AAF would undergo an expansion beyond any peacetime perception. Aware of the urgent problem of staffing the many newly activated stations with medical officers, this officer conceived and developed a procedure by which physicians were solicited, physically examined and appointed in the Army of the United States for duty with the AAF. Through his efforts, initiative and devotion to duty he secured for the AAF the finest profession-

ally qualified medical corps officers available and properly assigned these officers to stations where they could best serve the AAF and the war effort. The accomplishment of this tremendous and outstanding task contributed materially to the effective realization of the AAF mission." Dr. Hall graduated from Washington University School of Medicine in 1928 and entered the service Aug. 1, 1929.

Major Clyde J. Rademacher

Major Clyde J. Rademacher, formerly of Bend, Ore., was recently awarded the Bronze Star for his work with the First Army headquarters during the Normandy landings. Dr. Rademacher graduated from the University of Minnesota Medical School, Minneapolis, in 1930 and entered the service April 12, 1941.

Colonel Francis J. McGowan

The Air Medal was recently presented to Col. Francis J. McGowan, formerly of New York, "for participation in aerial flights over enemy territory, which included making numerous landings on air strips near enemy bases." Dr. McGowan graduated from Columbia University College of Physicians and Surgeons, New York, in 1921 and entered the service Oct. 2, 1942. He was previously awarded the Bronze Star and Oak Leaf Cluster (THE JOURNAL, May 19, 1945, p. 210).

Major James W. Brooke

The Soldier's Medal with Oak Leaf Cluster and the Air Medal were recently awarded to Major James W. Brooke, formerly of Madison, Wis., during his service with the 8th Air Force. Dr. Brooke graduated from the University of Oregon Medical School in 1938 and entered the service June 2, 1941.

MISCELLANEOUS**BRITISH AND FRENCH OFFER
GRADUATE COURSES**

In the first three months of a program of medical and surgical retraining for civilian practice, more than 300 army medical officers have attended six of the leading medical schools in England and France since June. In addition many officers have been placed by the Information and Education Division in Europe and the Office of the Chief Surgeon in numerous hospitals and clinics to observe British and French methods.

One of the English schools selected by the Office of the Chief Surgeon for a continuous program of observation and study is the British Post-Graduate Medical School of the University of London. At the Post-Graduate School medical officers take a six week course in which they attend classes conducted by leading physicians and surgeons of England, make ward rounds as observers and observe in the clinics and operating theater.

At the Hammersmith Hospital, which is cooperating with the University of London, classes are held by the Post-Graduate School in pathology, in general surgery and in obstetrics and gynecology. Two other hospitals in London are used by medical officers taking classes at the school, although they are not regularly used by the University of London. These hospitals are the Chelsea Hospital for Women and Queen Charlotte's Maternity Hospital.

There are courses in neurology at the National Hospital for Nervous Diseases, London, in psychiatry at the York Clinic of Guy's Hospital, London, and at the Sutton Emergency Hospital, Sutton, Surrey, and in orthopedics at Queen Mary's Hospital, London.

Courses are being conducted at Oxford University, the Royal Army Medical College and Liverpool University Medical School, while other courses will be offered at other times in additional schools.

In France the Information and Education Division placed thirty-five medical officers with the Faculté de médecine of the University of Paris as observers in clinical research, diagnosis and surgery in eight hospitals in the Paris area. Hospitals and surgery in eight hospitals in the Paris area. Hospitals and surgery in eight hospitals in the Paris area. Hospitals and surgery in eight hospitals in the Paris area.

and obstetrics are the Clinique Baudeloque, Hôpital Broca, Hôpital de la Pitié, Asile Sainte-Anne, Hospice de la Salpêtrière, Clinique Tarnier, Hôpital de Vaugirard and La Maternité.

**MEDICAL STUDENTS TO BE DEFERRED
BY DRAFT BOARDS**

A memorandum issued by Lewis B. Hershey, director of the Selective Service System, August 31, makes the following recommendation to local boards relative to deferments of medical students:

3. Special consideration for registrants ages 18 through 25 in certain activities: Local boards will give special consideration to the deferment of registrants for whom there is on file or is hereafter filed a Form 42A (Special—Revised) if they come within one of the groups described as follows:

(a) Students in medicine, dentistry, veterinary medicine or osteopathy: Registrants ages 18 through 25 for whom a Form 42A (Special—Revised) is filed and in whose case the local board determines that they are pursuing a full time course of study in medicine, dentistry, veterinary medicine or osteopathy in a recognized school of medicine, dentistry or veterinary medicine or osteopathy until their graduation, and that they have completed a satisfactory pre-professional course prior to their entrance, will be given special consideration provided that a student of veterinary medicine should not be considered for occupational deferment if he commenced the study of veterinary medicine in a school of veterinary medicine on or after March 15, 1945. A "satisfactory preprofessional course" shall mean such work as is ordinarily required for entrance by medical, dental, veterinary medicine, and osteopathy schools of good reputation.

At the same time the central office of the Procurement and Assignment Service announced the discontinuance as of Sept. 15, 1945 of the plan for certification by state chairmen of registrants aged 18 through 25. Under the present Selective Service policy the deferment of registrants 26 years of age or more will be practically automatic.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Sept. 10, 1945.

Continuance of the Fight Against Venereal Disease and Prostitution

An appeal to communities to maintain wartime gains in the fight against venereal disease and prostitution was made by the Social Protection Division and Public Health Service of the Federal Security Agency, and the American Social Hygiene Association, in cooperation with the Army and Navy. "In 1918 a general relaxing of measures to curtail venereal disease followed the armistice," a statement pointed out. "We must not let history repeat itself. . . . This war against venereal disease is a fight on many fronts. All these sectors—health, law enforcement, ethics, economics and human dignity—are equally important. . . . During the war great gains have been made. These gains must be extended, not lost." District of Columbia Health Department officials are considering means of expanding the venereal disease treatment facilities of the capital, convinced that discharged servicemen, free of restraint, will become "more and more of a problem." Washington authorities are also studying the request of army doctors in Europe that the 1918 rule be imposed preventing diseased soldiers from boarding transports for home. They report a sevenfold increase in the venereal disease rate in the American occupied zone.

Disabled Veterans to Testify on Artificial Limbs

Hearings of the House Committee on Aid to the Physically Handicapped will resume in the Labor Committee room of the House Office Building when disabled war veterans will provide important information designed to aid civilians who have suffered loss of limbs. In addition to the Army and Navy amputees, witnesses will include representatives of the War and Navy departments, Office of Vocational Rehabilitation and other federal agencies and organizations. The committee, headed by Congressman Augustine B. Kelley of Pennsylvania, will study steps being taken to develop more satisfactory artificial appliances and the manner in which civilian amputees are being assisted by federal, state and private agencies. A representative of the Association of Limb Manufacturers of America, Inc., has been invited to the hearings, and there will be spokesmen present for the Veterans Administration, Office of Scientific Research and Development, Disabled American Veterans, American Legion, Veterans of Foreign Wars, American Veterans of World War II and American Federation of Physically Handicapped.

Termination of Federal Nurse Recruiting Program

President Truman has ordered immediate termination of the federal nurse recruiting program. The White House revealed that on September 6 Mr. Truman wrote to Surgeon General Thomas Parran of the U. S. Public Health Service instructing him "to terminate the recruitment of student and graduate nurses immediately and to see to it that no students are enrolled in courses under the nurse training law, which begin after October 15. The end of the war removed the necessity for continuing to start federal training courses for nurses for the armed forces," Mr. Truman said. The White House announcement said the President's action would permit orderly termination of the Cadet Nurse Corps program. It will allow more than 1,100 training schools to adjust their services for peacetime and will enable 30,000 young women enrolled in the Cadet Nurse Corps in current classes to receive federal assistance toward their education.

Extension of Federal Aid to Child Care Centers

Strong support has been given the proposal to extend the Lanham act, with its federal help to child care centers. It has been pointed out that hundreds of thousands of servicemen will not be home for a year or more, and their wives, who must work to support themselves and one or more children, need these centers as much today as before the end of the war. Federal Works Administrator Fleming said he was convinced of the necessity for child care centers in the District of Columbia and in other congested areas. He had ordered the nurseries closed October 31 because "strict interpretation of the law requires it." However, ample funds are on hand to carry the program through the year, he said. Mothers' organizations and newspaper editorials have advocated continuance of the centers.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Message of the President

President Truman transmitted to the Congress, September 6, a message outlining suggested programs to be instituted by the federal government during the postwar period. Among other things he reemphasized the desirability of increased unemployment benefits but cautioned that this recommendation was not to be confused with the broader question of extending, expanding and improving the entire social security program of which unemployment insurance is only a part. He indicated that he would communicate with the Congress at a later date on the need of changes in the social security program. He called attention to the fact that the Congress has been considering legislation with respect to the construction of hospitals and health centers throughout the country and said that the federal government must continue to recognize its obligation to maintain and improve the health of the nation by providing federal grants where necessary for the construction of hospitals and health centers. He devoted a portion of his message to scientific research and urged the early adoption of legislation by the Congress for the establishment of a single federal research agency to promote, among other things, research in the basic and social sciences and in medicine, public health and allied fields. He repeated President Roosevelt's suggestions for an economic bill of rights, which included the right to adequate medical care and the opportunity to achieve and enjoy good health, and indicated that he would from time to time communicate with Congress on "some of the subjects included in this enumeration of economic rights."

Maternal and Child Welfare Act of 1945

Representative Norton, New Jersey, has introduced H. R. 3922, a bill to provide for the general welfare by enabling the several states to make more adequate provision for the health and welfare of mothers and children and for services to crippled children. This is a companion bill to S. 1318, introduced by Senator Pepper and nine other members of the Senate Committee on Education and Labor. The House bill was referred to the House Committee on Labor.

Federal Medical and Nurse Training Schools

Representative Price, Florida, has introduced H. R. 3924, H. R. 3926 and H. R. 3927, proposing, respectively, to provide for the establishment of a United States Naval Medical School, a United States Army Training School for Nurses and a United States Military Medical School. Admission to such schools, it is proposed, will be on the same terms and conditions as admissions to the United States Military Academy or the United

States Naval Academy, as the case may be. On graduation, commissions will be granted as ensigns or second lieutenants, and graduates may be assigned to duty in the Army, the Navy or, in case of nurses, to the Veterans Administration.

Miscellaneous

H. R. 3939, introduced by Representative Stevenson, Wisconsin, proposes an appropriation of \$500,000,000 for expenditure under the direction of the Surgeon General of the United States Public Health Service for research with respect to the cause and cure of cancer and poliomyelitis.

Representative Luce, Connecticut, proposes by H. Con. Res. 71 to record the Congress as believing that every effort should be exerted to give employment to the greatest possible number of veterans of World War II who are physically handicapped as the result of their service in the armed forces.

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

The Nebraska Surgical Plan

The Nebraska Surgical Plan, approved by the Nebraska State Medical Association, recently made available to many additional Nebraska communities the system of nonprofit prepayment sickness insurance benefits which already has been in operation in Douglas County since Nov. 1, 1944.

Already 45,984 Nebraskans are receiving the benefits of the Blue Cross plan. The surgical plan in operation in Douglas County in conjunction with Blue Cross has more than 2,000 subscribers.

The surgical plan, which offers subscribers surgical, maternity, x-ray, pathologic and anesthesia benefits, will be integrated with the Blue Cross plan established to subscribers' hospital bills within certain limitations.

Surgical plan subscribers and all their dependents are offered surgical, maternity, x-ray, pathologic and anesthesia benefits. The plan also provides for treatment of certain minor surgical cases in the doctor's office, such as fracture of a wrist, minor lacerations or incision of a boil. It does not cover medical service such as house visits in the case of ordinary illness caused by infectious diseases, influenza, pneumonia or other medical afflictions. When sufficient experience has been accumulated, benefits for treatment of medical cases confined within a hospital will be added to the surgical-maternity benefits.

To insure a fair cross section of subscribers, the surgical plan, like Blue Cross, is offered only on a group basis. In rural areas it is proposed to enroll farm groups through project clubs, townships, school districts and such cooperative groups as the Farmers Union.

The New York Trust Company Provides Hospitalization for Employees

The New York Trust Company has adopted plans to meet the expenses in hospitals of illnesses of employees and their family dependents, it has been announced recently by Mr. John E. Bierwirth, president of the company.

Protection will be provided beginning August 1 through the Blue Cross Plan of Associated Hospital Service of New York and the Doctors' Plan of the United Medical Service, Inc. The company will pay all costs.

In a letter to the employees announcing the adoption of the plans, Mr. Bierwirth explained that provision had been made for the payment of hospital bills and for the cost of medical, surgical and obstetric care in hospitals, and that benefits will be available without waiting periods to all salaried employees who have completed six months or more of continuous service.

This is the third insurance measure adopted by the New York Trust Company for its employees. In 1943 the company established a Retirement Annuity Plan, which was followed in 1944 by an Incentive Compensation Plan for the officers and employees.

Bureau of Information

SUMMARY SHEETS FROM SOUTH DAKOTA AND TENNESSEE

Completed county summary sheets have been received from counties in South Dakota through Dr. Roland G. Mayer, secretary, South Dakota State Medical Association, and from Tennessee through Dr. W. M. Hardy, secretary, Tennessee Medical Association.

The accompanying tables give data from selected counties in these states. The column giving the number of persons per telephone is used as one index of the economic status of the area. Many physicians over 65 years of age are carrying on large practices and are doing much to maintain the health of communities. They are not included in computing physician population ratios, however, as the future needs of the communities will be largely dependent on younger physicians.

South Dakota

County ¹	Principal Cities ²	Population	Physicians Under 65	Persons per Physician	Persons per Telephone ³
Bennett.....		2,292	1	2,292	573
Clay.....		8,357	4	2,089	7
Vermillion.....		3,324			
Corson.....		5,500	..	....	73
Edmunds.....		7,147	1	7,147	15
Glyde.....		2,717	1	2,717	10
Lyman.....		4,062	1	4,062	11
McPherson.....		6,890	1	6,890	12
Mende.....		8,548	1	8,548	12
Sturgis.....		3,008			
Union.....		9,413	3	3,138	6
Ziebach.....		2,239	1	2,239	23

Tennessee

County ¹	Principal Cities ²	Population	Physicians Under 65	Persons per Physician	Persons per Telephone ³
Anderson.....		36,233	9	4,026	57
Clinton.....		2,761			
Bedford.....		22,041	5	4,408	16
Shelbyville.....		6,537			
Olaiborne.....		22,947	6	3,824	93
Cumberland.....		14,891	5	2,978	61
Greene.....		35,187	17	2,070	35
Greenville.....		6,784			
Henderson.....		16,409	2	8,204	22
Lexington.....		2,526			
Marshall.....		15,613	6	2,602	14
Lewisburg.....		3,582			
Scott.....		14,835	6	2,472	94
Sumner.....		29,645	8	3,706	20
Gallatin.....		4,829			
White.....		14,031	6	2,338	36
Sparta.....		2,506			

1. Bureau of Census, estimated population 1943.

2. Bureau of Census, population 1940.

3. Based on 1940 figures, American Telephone and Telegraph Company.

A current knowledge of needs of communities for doctors is essential if adequate help is to be given veteran medical officers in their problems of medical practice. These needs can be indicated on the summary sheets under "Remarks" by the state and county secretaries and are then available to inquiring medical officers. Frequent reports from state and county medical societies about needs of communities for doctors will help maintain current files and will increase the service of the Bureau.

With the information available on a completely filled out summary sheet, it is readily possible for an interested medical officer to make an initial selection of areas in which he might like to practice. Since vacancies are held open in many communities for doctors now in military service, further investigation by direct correspondence with state and county medical societies will always be necessary to insure an accurate report of the needs of individual communities.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CONNECTICUT

Medical Needs of Veterans.—A regional meeting on the medical needs of veterans was held at the Veterans Administration Facility, Newington, September 13, under the auspices of the Connecticut State Medical Society and the Veterans Administration. Dr. Joseph H. Howard, Bridgeport, president of the state society, presided, and speakers included Major Gen. Paul R. Hawley, M. C., adviser on medical matters, Veterans Administration, and Capt. Howard H. Montgomery (MC), Washington, D. C.

Research Worker Dies of Poliomyelitis.—A "conscientious objector" working on poliomyelitis as a technician in one of the laboratories at Yale University, New Haven, died of the disease, August 26, according to the Associated Press. The technician, Warren G. Dugan, a graduate of engineering of the University of Illinois, Urbana, was one of three conscientious objectors working in the Yale University School of Medicine and was doing experimental work on infantile paralysis. He became ill on August 24 and died in the New Haven Hospital two days later.

ILLINOIS

Hubert Smith Named Professor of Legal Medicine at Illinois.—Dr. Hubert W. Smith, formerly research associate at the medical and law schools of Harvard University, Boston and Cambridge, has been named professor of legal medicine in the University of Illinois Graduate School. Dr. Smith, who until his recent release from service was acting as legal adviser and officer-in-charge of the legal medicine unit in the Bureau of Medicine and Surgery, U. S. Navy, will in his new appointment carry on research and teaching in the graduate school and teach at the college of medicine in Chicago and probably also in the law school. He will maintain his office on the Urbana-Champaign campus but give about half his time to the Chicago campus. He received his law and medical degrees at Harvard, the latter in 1941. His appointment was made under the new "Distinguished Professorship Fund" of the university, administered by the graduate school.

Chicago

Benefit for La Rabida Sanitarium.—A series of paintings known as the Abbott Collection of Marines in Action, by Kerr Eby, had its first Chicago showing at a benefit preview for the La Rabida Sanitarium September 5. The exhibit was at the galleries of the Associated American Artists under the joint sponsorship of the La Rabida Foundation and the U. S. Marine Corps. The collection was made for Abbott Laboratories and presented to the Navy.

Nonsalaried Faculty Members.—Appointment of 549 doctors to the nonsalaried faculty of the University of Illinois College of Medicine has been announced. This is a reduction of 20 from last year. Of the appointees, 184 are on leave for war service. The nonsalaried faculty of medicine are doctors who give a part of their time to clinical instruction at the university. They receive the benefit of experience with cases brought to the university and its hospitals, at the same time giving the patients and the medical students the benefits of their experience. Appointments are in seventeen departments.

Conference on Tuberculosis.—A conference on control of tuberculosis in a metropolitan area, under the sponsorship of the Institute of Medicine of Chicago, will be held November 13-14 at the Palmer House and will cover phases that are of particular importance at this time to clinicians, specialists, lay workers and teachers, who are cordially invited to attend. There will be panel discussions on financing the tuberculosis problem, the problem of the tuberculous war veteran, immunization with the bacillus Calmette-Guérin, and education of medical students and physicians in tuberculosis. Additional information may be obtained from the Institute of Medicine of Chicago, 86 East Randolph Street, Chicago 1.

Meeting of Statewide Public Health Committee.—On August 29 more than 100 representatives of medicine, education, labor, agriculture, business and other interests participated in the annual meeting of the northern section of the executive board of the Illinois Statewide Public Health Com-

mittee in Chicago. The object of the meeting was to discuss plans for continued efforts to arouse public support for the establishment of county health departments under the 1943 act, a number of which have already been set up through the committee's activities. Benjamin Wham, Chicago attorney and general chairman of the committee, reported that in the two war years following the passage of the act eight counties have adopted health departments, four by resolution of their county boards and four by referendum, and that a large number of counties have local committees actively at work.

Conrad Sommer Goes to St. Louis.—Dr. Conrad S. Sommer recently resigned as deputy director of the mental hygiene service of the Illinois Department of Public Welfare to develop a psychiatric clinic at the St. Louis County Hospital, Clayton, and to accept an appointment as assistant clinical professor of psychiatry at the Washington University School of Medicine, St. Louis. The project at the St. Louis County Hospital, which opened August 1 and which is in charge of Dr. Sommer, serves children and adults through the range of all mental hygiene disorders including behavior problems, neuroses, psychosomatic disorders and psychoses. The clinic's psychotic patients are sent to the Malcolm A. Bliss Psychopathic Institute, St. Louis City Hospital, where the county clinic staff studies the cases in cooperation with the Bliss staff. Patients requiring longer care are sent to the state hospitals at Farmington and Fulton. An attempt is made wherever possible to avoid commitment through the use of community and clinic mental hygiene technics. Dr. Sommer graduated at the University of Illinois College of Medicine in 1932. He had been superintendent of the state division of mental hospitals in Illinois from 1940 until 1943, when he became director of the mental hygiene service.

Symposium on Medicolegal Problems.—The Institute of Medicine of Chicago and the Chicago Bar Association are cooperating in a symposium on medicolegal problems to be held Tuesday evenings, October 9-November 13, at the Chicago Bar Association, 29 South LaSalle Street. Speakers will include:

The Medical Witness in Court: Expert Testimony, October 9—medical discussion: Dr. Oscar Hawkins, chairman, committee on legal problems, Chicago Medical Society; legal discussion: Erwin W. Roemer Esq., member of the Chicago Bar and of the firm of Gardner, Carton & Douglas (the Chicago Medical Society collaborating).

Artificial Insemination: Medicolegal Implications, October 16—medical discussion: Dr. Jacob P. Greenhill, professor of gynecology, Cook County Graduate School of Medicine, attending gynecologist, Michael Reese Hospital; legal discussion: James P. Wright Esq., member of Chicago Bar and of the firm of Rawlins & Wright.

The Practice of Pathology and Its Medicolegal Problems, October 23—medical discussion: Dr. Alan R. Moritz, professor of legal medicine, Harvard Medical School, Boston; legal discussion: Abe R. Peterson Esq., member of the Chicago Bar and of the firm of Eckert & Peterson (the Chicago Pathological Society collaborating).

Operations to Produce Sterility: Medicolegal Implications, October 30—medical discussion: Dr. Frederick H. Falls, head of the department of obstetrics and gynecology, University of Illinois College of Medicine; legal discussion: Burke Shartel Esq., professor of law, University of Michigan, Ann Arbor.

Trauma and Tumors in Industrial Medicine, November 6—medical discussion: Dr. Otto Saphir, professor of pathology, University of Illinois College of Medicine, Dr. Hamilton R. Fishback, associate professor of pathology, Northwestern University Medical School; legal discussion: Daniel D. Carmell Esq., member of Chicago Bar.

Scientific Tests in Evidence: Blood Grouping Tests in Disputed Paternity Cases; Chemical Tests for Intoxication, November 13—medical discussion: Dr. Israel Davidsohn, associate professor of medicine, University of Illinois College of Medicine, Clinical toxicologist, Michigan Department of Health; legal discussion: Fred E. Inbau Esq., professor of law, School.

All lawyers, physicians, students and others interested in medicolegal problems are cordially invited to attend. Early reservations for dinner will be appreciated.

MASSACHUSETTS

Changes in State Health Department.—Dr. Caroline A. Chandler has been appointed supervisor of clinics for crippled children in services for crippled children of the Massachusetts Department of Public Health, Boston. Prior to accepting a commission in the U. S. Public Health Service, Dr. Chandler was with the division of research in child development in the Children's Bureau. Dr. Roy F. Feemster was appointed director of the division of local health administration in the department of health. He will retain this office for the duration, after which he will return to his former position of director of the division of communicable diseases. Dr. Merrill E. Champion, former epidemiologist in the department, is now acting director of the division of communicable diseases. William H. Griffin, D.M.D., has been appointed to the Massachusetts Public Health Council by Governor Maurice J. Tobin. He succeeds Dr. Elmer S. Bagnall, Groveland, whose term of appointment expired in June. A. Laurence Corbman, D.D.S., formerly associate dental surgeon with the Office of Indian

Affairs of the U. S. Department of the Interior in South Dakota, has been appointed public health dental supervisor with the state department of health. He is assisting in a dental caries study authorized by the recent legislature, in which the use of fluorine for reducing caries among schoolchildren is being investigated. Dr. Charlotte Silverman is now with the department of health as epidemiologist in the division of communicable diseases. Prior to her appointment Dr. Silverman was senior assistant surgeon, U. S. Public Health Service Reserve, at the National Institute of Health, Bethesda, Md.

MICHIGAN

Human Problems in Industrial Employment.—"Human Problems in Industrial Employment" will be analyzed and discussed during a course of thirteen consecutive Wednesday evening conferences to be conducted by the Wayne University School of Occupational Health at the Hotel Wardell-Sheraton, Detroit. Topics to be considered in the conference include:

- September 19, Problems of Matching the Employee and the Job.
- September 26, Problems of Supervisor-Employee Relations in Job Adjustment.
- October 3, Human Relations in Industry.
- October 10, The Psychologist and Industrial Relations.
- October 17, subject not announced.
- October 24, The Psychiatrist and Industrial Relations.
- October 31, Techniques for Measuring and Evaluating Individual Behavior.
- November 7, Occupational Fatigue.
- November 14, Research Approach to the Study of Human Relations.
- November 21, Clinical Interpretation of Behavior in the Measure of Occupational Fitness.
- November 28, The Interdependence of Occupational and Nonoccupational Personal and Health Factors in Continued Job Adjustment.
- December 5 and 12, subjects not announced.

In a statement to the press Dr. Raymond Hussey, dean of the Wayne University School of Occupational Health, said that the program is offered as a community service. It is designed especially for physicians who are interested in the practice of medicine in its application to industrial health.

MINNESOTA

Operator of "Health Vaportorium" Sentenced.—On August 8 Dehlia C. McMahon, Minneapolis, pleaded guilty to the charge of practicing healing without a basic science certificate and was sentenced to one year in the Minneapolis workhouse. The sentence was suspended on condition that she close her place of business and refrain from attempting to practice healing. The defendant had operated a place known as the "Health Vaportorium," where she claimed to be giving treatments for such conditions as "sinus, colds, bronchitis, neuritis, arthritis, nervousness, poor circulation, constipation and so forth." The treatments, for which the defendant charged from two to five dollars each, consisted of a vaporized oil bath, massage and vitamins.

Courses for Physical Therapy Technicians to End.—The section on physical medicine at the Mayo Clinic, Rochester, will discontinue its regular emergency courses for the training of physical therapy technicians when the present class completes its training July 1, 1946. Attention will be directed then to the provision of graduate and refresher courses for physical therapy technicians who have previously completed a course in an institution approved by the Council on Medical Education and Hospitals of the American Medical Association. It is hoped to inaugurate this program in September 1946. A plan is also entered to replace the emergency courses for military physicians offered under the section on physical medicine throughout the war emergency, with graduate and refresher courses for army and navy medical officers returning from military service who may wish to continue in the field of physical medicine who may have worked in this field while in service.

NEW JERSEY

Personal.—Frederick W. Lorenz, Ph.D., assistant professor of poultry husbandry, University of California College of Agriculture, Davis, Calif., has been appointed to the research staff of the White Laboratories, Inc., Newark; he will be in charge of research in physiology and endocrinology.

Special Society Election.—Dr. Harry J. Perlberg, Jersey City, was elected president of the Radiological Society of New Jersey recently. Other officers include Drs. John L. Olpp, Englewood, vice president; Harry R. Brindle, Asbury Park, secretary, and William H. Seward, Orange, treasurer.

Survey of Hospital and Health Center Facilities.—The New Jersey State Commission on Postwar Economic Welfare is undertaking a statewide survey of hospital and health facilities and services as part of a national survey sponsored by

the Commission on Hospital Care, the New York Times reported July 22. Emil Frankel, director of research and statistics of the state department of institutions and agencies, will be director of the study, and William H. McDonald, Trenton, of the state department of health, will be assistant director.

NEW YORK

Staff Resigns at Guidance Center.—Plans for the operation of the Rochester Guidance Center, mental hygiene clinic for children, are under the consideration of the board of directors following the mass resignation of the entire clinic staff, which was in charge of Dr. Exie E. Welsch. All resignations are effective October 1, according to the Rochester Times Union. Newspapers indicated that criticism from agencies led to the clash between the staff and the board.

Louis Kress Made Director of Malignant Disease Institute.—Dr. Louis C. Kress, since 1919 associated with the State Institute for the Study of Malignant Diseases, Buffalo, has been named director of the institute, effective September 1. Dr. Kress, who graduated at the University of Buffalo School of Medicine in 1918, joined the institute staff in 1919 as voluntary assistant; in 1932 he was appointed assistant director of the newly created state division of cancer control, serving concurrently as chief surgeon of the institute. He has been director of the division since 1939.

New Offices of State Society.—The office of the Medical Society of the State of New York will be located on the seventh floor of the building at 292 Madison Avenue, New York 17. The society now has twice as much floor space as it had on the twenty-first floor of the building, where it has been located for the past five years. The new space is expected to be available soon after the first of the year. The house of delegates of the society will hold a meeting at the Statler Hotel, Buffalo, October 8-9. Plans are now going forward to increase the pages of the state journal in 1946. The following dates have been decided for various district meetings:

- First District, October 30, White Plains.
- Second District, October 24, U. S. Naval Hospital, St. Albans.
- Third District, September 20, Albany.
- Fourth District, September 21, Queensbury Hotel, Glens Falls.
- Fifth District, September 18, Oneida.
- Sixth District, September 26, Country Club, Cortland.
- Seventh District, September 27, Clifton Springs Sanitarium and Clinic, Clifton Springs.
- Eighth District, October 4, Hotel Statler, Buffalo.

New York City

Contributions of the War Effort to Medicine.—The eighteenth Graduate Fortnight of the New York Academy of Medicine, October 8-19, will be devoted to "Contributions of the War Effort to Medicine." Following the address of Dr. Cornelius P. Rhoads, acting president of the academy, the scientific program will open with the delivery of the Ludwig Kast Lecture by Col. William C. Menninger, M. C., on "Modern Concepts of War Neuroses." The lecture is in memory of Dr. Kast, who proposed the Graduate Fortnight. Other speakers will be:

- Dr. Thomas A. C. Rennie, What Can the Practitioner Do in Treating the Neuroses?
- Lieut. Col. Roy R. Grinker, M. C., Sedation as a Technic in Psychotherapy.
- Col. Howard A. Rusk, M. C., Planned Convalescence.
- Dr. David P. Barr, Physiologic and Psychologic Effects of Bed Rest.
- Dr. John H. Powers, Cooperstown, N. Y., Evaluation of Early Post-operative Activity.
- Dr. George W. Thorn, Boston, The Use of Human Serum Albumin in the Treatment of Edema of Renal and Hepatic Origin.
- Dr. Joseph Stokes Jr., Philadelphia, The Plasma Globulins in Prophylaxis and Treatment.
- Dr. Dickinson W. Richards Jr., Mechanism of Shock.
- Dr. S. Howard Armstrong Jr., Boston, Management of Blood Preservation and Blood Substitutes.
- Col. Daniel C. Elkin, M. C., Treatment of Peripheral Arterial Injuries (The Carpenter Lecture).
- Dr. Arthur W. Allen, Boston, Thrombosis and Embolism.
- Lieut. Comdr. Thomas I. Hoen (MC), Reconstructive Surgery of the Nerves.
- Dr. Philip D. Wilson, Reconstructive Surgery of the Joints.
- Dr. Virginia Kneeland Frantz, New Absorbable Hemostatic Agents.
- Dr. Jonathan E. Rhoads, Philadelphia, The Use of Penicillin and Streptomycin in Surgical Infections.
- Dr. James A. Shannon, Chemotherapy in Malaria.
- Dr. John P. Peters, New Haven, Nutritional Needs in Acute and Chronic Illness.
- Dr. Luther Emmett Holt Jr., Reevaluation of the Vitamins.
- Dr. Robert L. Levy, The Stimulus of War to Cardiology.
- Dr. Harold W. Brown, Filariasis.

The program will include a series of morning panel discussions on psychiatric rehabilitation, physical reconstruction, vascular surgery and ununited fractures. There will be clinics in the afternoon held at various hospitals in the city. Scien-

tific and drug exhibits and motion picture demonstrations and a special display of books illustrating the general subject of the fortnight will be shown as well as a practitioner's book shelf.

NORTH CAROLINA

Personal.—Eden Clark of Duke University, Durham, has been named chairman of the board of governors of the Association of Medical Illustrators (*THE JOURNAL*, August 4, p. 1040).

Undergraduate Award Given.—Dr. John P. McGovern, Washington, D. C., who graduated at Duke University School of Medicine, Durham, in June, was the first Duke recipient of the Borden Undergraduate Research Award in Medicine. The award was set up with a \$500 gift this year by the Borden Company Foundation of New York to stimulate productive research by undergraduate students. Dr. McGovern received the prize for his original investigation on whooping cough.

Radiologic Meeting.—The North Carolina Radiological Society will hold its fall meeting at the Watts Hospital, Durham, October 5-6. Among the speakers on the program will be:

Dr. George J. Baylin, Durham, Effects of X-Ray Therapy in Experimental Virus Pneumonia.

Dr. Gibbons W. Murphy, Asheville, Experiences in the Army of the United States.

Dr. Paul P. McCain, Sanatorium, Boeck's Sarcoid.

Dr. Jasper Lamar Callaway, Durham, Discussion of Cutaneous Manifestations of Sarcoid.

Dr. Robert J. Reeves, Durham, Discussion of Bone Lesions in Sarcoid.

Dr. Vincent W. Archer, Charlottesville, Va., Diagnosis of Bone Lesions in Childhood.

Dr. Hugh F. Hare, Boston, Treatment of Carcinomas of the Larynx.

Changes in Health Officers.—Dr. Alfred Mordecai has been appointed health officer for the newly created health department for Davie, Yadkin and Stokes counties, with headquarters in Winston-Salem. The change in the setup of the health department came about with the consolidation of the city and county units in Forsyth, with Dr. John Roy Hege resigning there to join the state health department at Raleigh.

—Dr. Gilcin F. Meadors Jr. has resigned as health officer of Lenoir County to report to the states relation division of the U. S. Public Health Service, Washington, D. C., effective August 10.—Dr. Hamilton W. Stevens, Jacksonville, director of the Onslow-Pender District Health Department, has resigned, effective September 30, to become director of the Wilson City and County health unit.

OHIO

Health Museum Buys Garfield House.—Trustees of Cleveland Health Museum have approved plans for purchase of the building formerly known as Garfield House, 8917 Euclid Avenue, occupied by the Cleveland Speech and Hearing Center. The new property will be used primarily to accommodate the Dickinson Collection of sculptural models of human reproduction recently acquired by the museum (*THE JOURNAL*, July 21, p. 893). It will also be used to augment space for other existing exhibits and for new exhibits planned to cover mental hygiene, industrial health and a new series pointing the way toward a healthier and happier old age. Additional space will be available for the health education laboratories, particularly the new plastics department, and extend the facilities for teaching in the postgraduate field of health education.

Western Reserve Plans New Psychiatric Program.—Approval has been given to the establishment of a psychiatric clinic at the University Hospitals, Western Reserve University, Cleveland, to provide treatment for civilians for a nominal fee and free treatment for servicemen and their families who are referred there by the American Red Cross. Establishment of the clinic is made possible through the Greater Cleveland Red Cross chapter, which has procured financial support for the part of the program applying to servicemen and their families. It is anticipated that some support for the civilian part of the program will be sought later through a public campaign. A new professorship of psychiatry has also been set up, the first incumbent to be Major Douglas D. Bond, head of psychiatry, U. S. Air Surgeon's Office, Washington, D. C., who will take over his new activities as soon as he is released from service. Major Bond in this position will serve as director of the clinic, which will be staffed by five psychiatrists, one psychologist and psychiatric social workers and nurses. For the present it will be housed in Lakeside Hospital. Eventually a new psychiatric building to cost about \$450,000 will be constructed to adjoin the other hospitals of the University Hospital group on the Western Reserve campus. The only member of Major Bond's staff thus far announced is Lieut. Col. Edward O'Neil Harper, who was with the Lakeside unit in the Pacific theater for three years.

The clinic will treat the more mild disorders, such as maladjustments and emotional difficulties. At all times in its planning and actual operations it is expected that representatives of the Red Cross will sit on the advisory committee and that Red Cross officials will be kept informed concerning personnel and operation in order that this cooperative project may continue efficiently and with the greatest benefit to those whom it seeks to serve. The new clinic is said to represent a pioneer project as far as the Red Cross is concerned.

PENNSYLVANIA

Philadelphia

George Meeker Dies.—George H. Meeker, Ph.D., from 1918 to 1941 dean of the Graduate School of Medicine of the University of Pennsylvania, died at Hunt's Lake, N. J., September 4, aged 74. Dr. Meeker received his Ph.D., at Lafayette College, Easton, Pa., in 1898 and his Pharm.D. at the Medico-Chirurgical College in Philadelphia in 1906. He had served as professor of chemistry at the University of Pennsylvania School of Medicine from 1916 to 1940. He aided in the establishment and became the first dean of the Graduate School; he also founded the department of pharmaceutical chemistry at the university in 1907. He was director of the Graduate Hospital from 1924 to 1928 and was prominently known as an expert on toxicology.

SOUTH CAROLINA

Postgraduate Assembly.—The Piedmont Post Graduate Assembly and the Fourth District Medical Society are cooperating in the following program at the Anderson County Hospital, Anderson, September 18:

Dr. A. Benson Cannon, New York, Management of Some Common

Skin Diseases and Presentation of Clinical Cases.

Col. Charles T. Young, M. C., The Army's Appraisal and Management

of Battle Fatigue.

Dr. James Elliott Scarborough Jr., Atlanta, Ga., Management of

Melanoma.

Dr. Oscar L. Miller, Charlotte, N. C., Orthopedic Problems Which the

General Surgeon and Family Doctor Should Handle.

At the banquet session in the Calhoun Hotel, with Dr. Joseph Decherd Guess, Greenville, as toastmaster, the speakers will be Dr. Scarborough on "Some General Remarks on Cancer" and Dr. Miller, who will give a biographic sketch of "Dr. Oliver M. Doyle."

UTAH

Program in Child Psychiatry.—The Rockefeller Foundation has given funds to the University of Utah School of Medicine, Salt Lake City, to establish a program in child psychiatry. Dr. Reynold A. Jensen, associate professor of neuropsychiatry and pediatrics, University of Minnesota Medical School, Minneapolis, in charge of the child psychiatric clinic, University Hospitals, Minneapolis, is in Salt Lake City on the grant for a period of two months to create interest in the establishment of a child psychiatric program there.

Anonymous Donation Sets Up Lectureship.—An anonymous donor has given funds to the Utah Medical Foundation to present a series of lectures on current problems in pediatrics, the first of which was recently given by Dr. Joseph Stokes Jr., William H. Bennett professor of pediatrics, University of Pennsylvania School of Medicine, Philadelphia. Dr. Stokes's subjects were "The Study of Hepatitis" and "Some Uses of Gamma Globulin in Hepatitis and Other Infectious Diseases." The second speaker in the series was Dr. Alexander Ashley Weech, B. K. Rachford professor of pediatrics, University of Cincinnati College of Medicine, who spoke on "Physiologic Consequences of Inadequate Dietary Protein" and "The Role of Cortical Development in Determining the Behavior of Infants." The Utah Medical Foundation was recently established at the University of Utah School of Medicine with a gift by the first graduating class of the four year school (*THE JOURNAL*, August 25, p. 1240).

WEST VIRGINIA

Personal.—Dr. Paul H. Harmon, chief of the orthopedic department of the Guthrie Clinic at Robert Packer Hospital, Sayre, Pa., has been appointed medical director of the Morris Memorial Hospital, Milton, effective August 1.—Mrs. Ruth J. Franz, Milwaukee, has been appointed director of the bureau of public health education in the state health department, succeeding the late Dorothea Campbell, Charleston. Mrs. Franz, who is a graduate of the University of Michigan and who has completed a course in public health education at the School of Public Health at Ann Arbor, has recently been doing field health work for the Michigan Department of Health.

Membership of Advisory Legislative Committee Completed.—The membership of the advisory committee to the legislative interim committee studying public health problems (THE JOURNAL, May 5, p. 44) was recently completed, when Governor Clarence W. Meadows named business and professional men and women as members of the group. Eight physicians were appointed by the governor several weeks ago as members of the advisory committee (THE JOURNAL, June 23, p. 606). Dr. William R. Laird, Montgomery, has been named as the governor's personal representative in the field of medicine. Henderson Peebles, Charleston, will represent business, and Mrs. D. W. Stubblefield, Charleston, the public at large. Labor representatives include John B. Easton, Charleston, C. I. O.; Volney Andrews, Charleston, A. F. of L., and George J. Titler, Beckley, United Mine Workers of America. H. B. Crow, Weirton, is the industrial representative and John J. Foster, Holden, was named for mines and mining. O. W. Van Petten, Charleston, will represent the oil and gas industry.

PUERTO RICO

Hospital Construction.—The building of three hospitals is under consideration by the committee on design of public works of Puerto Rico, one in Ponce, one in Mayaguez and one in Guayama. The Ponce Charity Hospital is to be an eight story structure to cost about three million dollars and to have a capacity of about 600 beds. The Mayaguez institution is to have 500 beds and cost about two million dollars, while the Guayama Hospital is to cost about one million and have 300 beds.

GENERAL

Your Doctor Speaks.—Every physician in the United States will receive during the coming months copies of a new publication entitled "Your Doctor Speaks." The book, issued by the Upjohn Company, manufacturers of pharmaceuticals, contains a series of health messages which are a part of the health campaign being run monthly in various popular periodicals.

Industrial Safety Tomorrow.—The National Safety Council has released a sixteen page pamphlet entitled "Industrial Safety Tomorrow," outlining a specific program to help industry meet an impending increased accident toll. Preparation of the pamphlet was handled by a special committee on postwar industrial safety and represents the contributions of thirty-eight national organizations interested in industrial safety.

Expanded Facilities Approved to Produce Streptomycin.—On August 1 the War Production Board approval of priorities for plant and equipment materials was received by Merck & Company, Rahway, N. J., to permit the construction of special facilities for the production of streptomycin. The production unit will be erected at the company's Stonewall Plant at Elkton, Va., and a unit for drying and packaging the drug at the company's main plant at Rahway. Total cost will approximate \$3,500,000. The new plant is expected to go into production early in 1946.

Pan American Congress of Otolaryngology Postponed.—Because the cancellation of the 1945 annual meeting of the American Academy of Ophthalmology and Otolaryngology was necessary, the Pan American Congress of Otolaryngology and Broncho-Esophagology has also been postponed to the following year. The academy committee is preparing meanwhile a directory of otorhinolaryngologists in the Americas, which will include not only a list of the names and addresses of the qualified specialists in the various countries of North, Central and South America but also a list of the societies of otorhinolaryngology, with their present officers; the journals of otorhinolaryngology and their editors-in-chief, and the faculties of medicine which have chairs of otorhinolaryngology, with the name of the present incumbent.

Pan American Congress of Ophthalmology.—The official meeting place of the second Pan American Congress of Ophthalmology, which will take place in Montevideo, Uruguay, November 26-December 1, is the Municipal Hotel "Miramar" on Carrasco Beach. Reservations should be made before October 1 through Dr. Conrad Berens, 301 East 14th Street, New York 3. Any one who wishes to stay in some other hotel should make reservation requests before October 1 to the treasurer of the congress, Dr. Julio A. Sicardi, Agrupacion Universitaria, Ave. Agracida 1464, P. 13, Montevideo. The registration fee for members of the congress is \$11 U. S. money (\$20 Uruguayan) and for others in the party who wish to be included in the social events \$5.50 U. S. money, per

person. These fees may also be paid in advance to Dr. Berens. Because of travel conditions, it was not possible to make arrangement for those attending the congress from the United States to go in a group. The Pan American Airways and the American Express Company will cooperate to do everything possible to work out transportation plans to meet individual requirements. Dr. Harry S. Gradle, Chicago, is president of the congress.

"The Constant Invader" Theme of New Radio Series.

—The first major nationwide effort by tuberculosis associations to use radio as a channel for health education will be made this fall, when "The Constant Invader," a series of thirteen recorded dramatic shows, goes on the air from approximately 250 stations throughout the country. The series, produced by the National Tuberculosis Association for affiliated associations, dramatize the ways and means of preventing and controlling tuberculosis. Dr. Archibald J. Cronin, author, is the narrator of the series, Hu Chain, New York, the writer producer and Ben Ludlow the composer conductor. The thirteen dramatic shows portray consecutively the advances in medicine and surgery in the treatment of tuberculosis, the role of the family doctor in the tuberculosis campaign, the ways in which community agencies work together toward the solution of the tuberculosis problem, the work of the public health nurse in a rural community, the necessity of tuberculin testing in schools, the "hows" of an industrial x-ray survey, the necessity of examining family contacts, modern sanatorium care, a typical college health program, tuberculosis as a problem among old people, the value of rehabilitation, the "hows" and results of health education, and medical research.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended September 1 have been received from the division of public health methods, U. S. Public Health Service, as follows:

Division and State	Poliomyelitis		Division and State	Poliomyelitis	
	Week Ended	Week Ended		Week Ended	Week Ended
	9/1, 1945	9/2, 1944		9/1, 1945	9/2, 1944
New England States:			South Carolina ..	12	4
Maine	3	1	Georgia	6	8
New Hampshire ..	3	11	Florida	4	2
Vermont	5	7	East South Central States:		
Massachusetts ..	32	35	Kentucky	2	34
Rhode Island	0	1	Tennessee	23	5
Connecticut	20	20	Alabama	2	2
Middle Atlantic States:			Mississippi	3	7
New York	138	666	West South Central States:		
New Jersey	96	67	Arkansas	4	3
Pennsylvania	61	162	Louisiana	7	1
East North Central States:			Oklahoma	16	2
Ohio	33	105	Texas	33	8
Indiana	22	27	Mountain States:		
Illinois	94	37	Montana	0	
Michigan	13	120	Idaho	3	1
Wisconsin	15	32	Wyoming	2	
West North Central States:			Colorado	15	5
Minnesota	31	40	New Mexico	0	1
Iowa	9	7	Arizona	1	1
Missouri	29	11	Utah	34	2
North Dakota	4	0	Nevada	0	2
South Dakota	9	7	Pacific States:		
Nebraska	15	8	Washington	22	12
South Atlantic States:			Oregon	5	11
Delaware	4	4	California	33	10
Maryland	3	47	Total	917	1,682
Dist. of Columbia	8	22	First 35 weeks:		
Virginia	32	65	1945 and 1944 ..	6,126	9,474
West Virginia ..	1	14	Median, 1940-1944	4,026	
North Carolina ..	10	41			

The seasonal peak of poliomyelitis this year for the country as a whole has probably been reached, although a few areas, especially in the Northern states, may report some increased incidence during the next few weeks. The largest weekly number of reported cases, 931, was for the week ended August 25, as compared with a peak of 1,682 cases for the week ended Sept. 2, 1944. If cases were recorded by date of onset rather than by date of report to the local health officers, the peak of incidence would probably be a week or ten days earlier.

CORRECTION

The Therapeutic Uses of Radioactive Phosphorus.—In the editorial with this title in THE JOURNAL, July 28, page 954, appears a statement to the effect that complications such as leukemia may be produced when this form of therapy is employed in the treatment of polycythemia vera. The word used should have been leukopenia. Complications such as leukopenia, thrombocytopenia or anemia not infrequently may be observed in patients with polycythemia vera if the dosages of radioactive phosphorus administered are large.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 18, 1945.

The Teaching and Practice of Chemical Pathology

Because of the present unsatisfactory position of chemical pathology, a committee of the chemical pathologists of the London teaching hospitals has prepared a memorandum on the subject. The members agree with the recommendation in the Goodenough report that chemical pathology should form a separate department and be under the direction of a professor, reader or senior lecturer. To this they would add that the chemical pathologist should be a full member of the medical committee of his hospital. Undergraduate teaching in chemical pathology should be given in the form of a short introductory course at the beginning of the clinical period, with other lectures over the remaining clinical years. The committee differs from the Goodenough proposal which allots routine chemical work to the clinical pathologist, because the chemical pathologist would be largely cut off from the principal source of his inspiration, and his teaching of the basic principles and routine methods would tend to lose contact with current practice. If, for example, no routine blood urea estimations were performed in his department, both the technic and the interpretation of this test would eventually become remote from his personal experience. The standard of chemical work would become lower and a retrograde step would be taken against the tendency to specialization in pathology, which is inevitable. In a hospital of 1,000 beds the routine work in hematology and bacteriology will be so much that the addition of routine chemical tests would be an excessive burden. A closer liaison between the preclinical biochemical and the chemical pathology departments in the medical schools is advised.

The following curriculum, based on a total of twenty-four hours' instruction during the clinical period, is recommended in the report: 1. An introductory course of six hourly periods in the first clinical year, dealing with general principles and including instruction on collection of specimens and urine testing. 2. A general course of eighteen hourly periods during the second and third clinical years, covering the whole subject of the application of chemical methods to clinical problems. 3. A limited number of lectures on special aspects and recent advances during the preregistration year.

Proposed Formation of a Group of Dermatologists Within the British Medical Association

A number of members of the British Medical Association who are dermatologists have petitioned the association for the formation within it of a group of dermatologists. They are engaged in a specialized branch of which the importance is becoming increasingly recognized, but the number in one division of the association is too small to put forward the medico-political problems of the specialty adequately. They therefore hold that the formation of a group of those whose work is exclusively dermatologic would be an advantage both to the group and to the association.

British Medical Association Passes the 50,000 Mark

The British Medical Association has passed the mark of 50,000 members for the first time. On Sept. 2, 1939 the number was 39,121; in 1942, 41,239, and in July 1945, 50,032. The great increase in the last three years seems to have been largely due to the Beveridge scheme for a national health service, which threatened to convert the doctors into state officials. The *British Medical Journal* looks back with gratitude to its founder, Dr. Charles Hastings, who with his colleagues propounded the

objects of the association, which have stood the test of time. Beginning in 1832 with the small group of 50, the membership had grown to 500 in 1836, to 1,010 in 1839, to 5,400 in 1873, to 10,050 in 1883, to 16,000 in 1895, to 20,993 in 1906 and to 30,524 in 1925. The objects of the association, as laid down by its founder, were the advance of medical science and the maintenance of the honor of the profession by promoting voluntary intercourse and free communication of its members.

MOSCOW

(From a Special Correspondent)

Aug. 21, 1945.

The Moscow Medical Institute

Tsarist Russia's thirteen faculties of medicine and 1,800 students have been increased under the Soviet rule to seventy-two medical institutes with a student body of 115,000. Russia's 20,000 doctors in 1913 have now grown to 130,000. Still the number of doctors is not adequate to meet the nation's needs and to staff its expanding network of medical institutes. These graduate as many as 20,000 doctors a year. Following is a description of the type of work performed by one of these schools. The Moscow Medical Institute, of which Andrei Likhachev is director, is celebrating its 180th anniversary this year. A number of Russian scientists who have added brilliant pages to medical history received their training here. Among these may be mentioned the surgeon Nikolai Pirogov and the internist Sergei Botkin. Ivan Sechenov, author of "Brain Reflexes," was one of its teachers. The institute has made valuable contributions in every field of theoretical and practical medicine. The student body today numbers 4,000. The first two years are devoted to the study of anatomy, physiology, histology, biology and biologic chemistry. Beginning with the third year, students are introduced to clinical work. After receiving their general training they specialize in hospitals and clinics in accordance with their inclinations and abilities.

On the teaching staff are men of the type of Nikolai Burdenko, chief surgeon of the Red army; the pathologist Alexey Abrikosov, who has trained an army of pathologists in the course of his thirty-five years' work at the institute, and Boris Zbarsky, who embalmed the body of Lenin and is now teaching biochemistry. All these men have had the highest civilian award, Hero of Socialist Labor, conferred on them. The staff numbers 70 professors, 100 docents and over 250 instructors. Eleven are members of the Medical Academy of Sciences.

The course of study was increased this year from five to six years. There are no tuition fees; 95 per cent of the students receive government stipends. Sixteen of the best students receive the Stalin scholarship. Over 30 per cent live in institute dormitories. In addition to their regular studies students may attend thirty circles of study in various specialized scientific fields. Five hundred students working in these circles are given opportunity to engage in independent research work.

Very popular is our "Free Day" club, which is conducted by the students and teachers and which arranges concerts, lectures by poets and novelists, and debates.

Students who attain a high average and display ability for research and teaching are given an opportunity to continue their work at the institute in a three year postgraduate course, during which they work in laboratories and clinics under the guidance of professors and write their theses for the degree of candidate of science. Throughout their postgraduate period students receive government stipends large enough to enable them to devote themselves entirely to their work.

The institute has trained 34,000 doctors in its one hundred and eighty years of existence. During the war, Academician Burdenko set up an experimental station in the institute to test new drugs and methods of treatment of wounds and of chemical and thermal burns.

The Chair of Food Hygiene developed recipes for so-called supplements, which increase the assimilability and nutritive value of various food concentrates. The Chair of Communal Hygiene has developed methods of simplifying chlorination of the water supply for army field units.

The institute graduated 3,300 doctors during the war. In their leisure time students work with enthusiasm in hospitals and take an active part in hygienic inspection of the cities. Many of our students have won government medals and orders. The institute was awarded the Order of Lenin in 1940, on the occasion of its 175th anniversary, in recognition of the services its teaching staff has rendered in training medical men and in advancing medical science.

BOLIVIA

(From Our Regular Correspondent)

LA PAZ, Aug. 14, 1945.

Pharmacies and Drug Market in Bolivia

For the needs of the approximately three million inhabitants of Bolivia there is a total of seventy-two registered drugstores, fifty-eight of which are located in the district capitals and only fourteen in rural areas, where the doctors have to do their own dispensing of drugs. Every drugstore must have a registered pharmacist in charge, strict supervision being exercised in this respect by the National Health Department.

Most of the drugs are imported but there are also a few national manufacturers. The Public Health Department operates a bacteriologic laboratory, producing appreciable quantities of good vaccines against smallpox, whooping cough, typhoid and plague for free distribution throughout the country. The Army Health Service operates drugstores and laboratories of its own. Large quantities of quinine sulfate and totaquine for home use and for export are produced by a government owned plant. There are some forty wholesale stores which are importers of remedies from abroad.

Up to the outbreak of the war German manufacturers such as Bayer, Schering and Knoll were firmly established on the Bolivian market and had practically no competitors. In 1939 most of them started production in their laboratories in Argentina, Brazil and Chile, but they had soon to curtail sales, as they ran short of raw materials from Germany. In 1942 American manufacturers, who had not been interested in this market before, started sending their drugs here; because of their quality, low prices and neat appearance they were immediately accepted by physicians and public alike. Today most of the larger American manufacturers as well as Brazilian, Argentine and Chilean producers are selling regularly their proprietary articles, especially vitamins, to a public which has become lately quite "vitamin conscious."

There is unfortunately a lack of certain sanitary goods such as surgical gloves and instruments.

In many a remote village, which had never known a doctor or drugstore, there practice medicine-men or witch doctors. The profession is usually passed on from father to son. Carrying his "drugstore" in a bag, this "doctor" comes to the sick man's house, bringing leaves, roots, bulbs, seeds and barks. Some of these remedies are quite efficient. It is noteworthy that it was these practitioners who, according to records, were first to use cinchona bark in the treatment of malaria. Many another drug from their "pharmacopeia" has later been officially accepted by the modern pharmacologists all over the world—to mention just one, the leaves of *Erythroxylon coca*, the "Divine plant of the Incas."

The medicine-man's reputation is rapidly vanishing now that some physicians are starting to work in the rural areas. However, to get the public there to trust him, the recently arrived physician has to prove first that his modern science and drugs are more efficient than the medicine-man's cures.

BELGIUM

(From a Special Correspondent)

Aug. 6, 1945.

Royal Academy of Medicine

The Royal Academy held its first public session since the liberation of Belgium on February 24. The president, Professor d'Hollander, made an address on the occasion of the liberation of the territory from enemy occupation. Professor Bruynoghe, secretary, read a moving obituary notice recalling the great merits of Professor Delrez as teacher, surgeon, scientist and academicien. He emphasized his patriotic sacrifices during the war of 1914-1918 and during the present war and stressed his important contributions to the surgical and scientific activities of the Ocean Ambulance.

The following subjects came up for discussion: low tension in electrocardiography, presented by F. Dauwe; the surgical treatment of essential hypertension, by Jean Govaerts, and the anti-Rh factor and erythroblastosis, by R. Bruynoghe, J. Hoet, De Somer and Vanden Broecke. In a subsequent session Dr. Lauwers read a paper on the intracarotid injections of procaine and other substances in the treatment of epilepsy.

Social Insurance

A struggle is in progress between the government and the medical profession. In effect, the proposed law of social insurance involves the loss of almost all of free practice. In a declaration Dr. Glorieux, president of the Belgian Medical Federation, said "At present there are in Belgium 2,600,000 persons under social insurance. If the draft of the law is adopted, it will mean that 96.5 per cent of the population is destined to become so. This condition will lead inescapably to state medicine. This must not happen. Suppress your motives of discord." France is undergoing a like experience and the disorganization of the medical profession has permitted the adoption of this law. The Belgian Medical Federation is organizing to resist this plan, which would transform the doctor into a functionary of the state.

Acetylcholine and Paroxysmal Tachycardia

The Belgian Society of Cardiology heard a communication by Segers, J. Lequime and H. Denolin on the arrest of crises of paroxysmal tachycardia by the intravenous injection of acetylcholine. The acetylcholine was administered intravenously, the dose varying between 0.01 and 0.10 Gm. dissolved in a 5 per cent solution. The authors were able to arrest with this method sixty-five attacks of tachycardia in 8 different subjects. There were no failures. The arrest of the attack was always prompt, less than thirty seconds after the termination of the injection.

Marriages

CLARENCE RAY LEININGER JR., Trenton, Mo., to Miss LoDonna Watson of Rexburg, Idaho, in Chicago June 13.

ROBERT ALEXANDER PRINGLE, Charleston, S. C., to Miss Barbara Bernice Baldock of Knoxville, Tenn., recently.

WALTER CLEVELAND FITZGERALD, Crewe, Va., to Miss Martha Ann BonDurant of Princeton, W. Va., July 1.

JOHN WILLIAM MURPHY JR., Kirkwood, Mo., to Miss Elizabeth Anne White of Norfolk, Va., in June.

JOHN EMORY HOLLER, Columbia, S. C., to Miss Edith Wilhelmna Stuckey of Bishopville, June 29.

RICHARD DEMME BAUER to Miss Lourainia Vrooman, both of Philadelphia, June 9.

MIGUEL DROBINSKY, Estelline, S. D., to Miss Lillian Starr of Chicago, June 23.

MILTON PLAFKER, New York, to Miss Elaine Kastil of Chicago, June 17.

Deaths

Edward Blanchard Hodge ☉ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1899; born in Burlington, N. J., Aug. 21, 1875; at one time associate professor of surgery at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; member of the founders group of the American Board of Surgery; member of the American Surgical Association; vice president of the College of Physicians of Philadelphia; served in France during World War I; formerly on the staffs of the Presbyterian, Germantown, Children's and University of Pennsylvania hospitals, in addition to serving as a member of the board of Children's Hospital; served on the staff of Chester County Hospital in West Chester; a trustee of Princeton University, Princeton Theological Seminary and Lincoln University, Oxford, Pa.; member of the board of the Northern Trust Company; member of the board of the Children's Seashore House, Atlantic City; a director of the Southeastern chapter of the American Red Cross; died June 19, aged 69, of myocardial infarction.

Josef Benediktus Nylin ☉ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1910; born in Sweden in 1874; served as assistant professor of physical therapy at the Woman's Medical College of Pennsylvania; at one time on the faculty of his alma mater and the Graduate School of Medicine of the University of Pennsylvania; member of the American Congress of Physical Therapy, the International Society of Medical Hydrology, London, England, Pennsylvania Physical Therapy Association, Pathological Society of Philadelphia and the American Swedish Historical Museum, of which he had been a trustee; chief of the department of physical therapy at the Hospital of the University of Pennsylvania; consultant in physical therapy at the Shriners' Hospital for Crippled Children; author of a chapter on "Hydrotherapy" in volume III of the Principles and Practice of Physical Therapy; died June 23, aged 71.

Marshall William McDuffie, New York; New York Homeopathic Medical College and Hospital, New York, 1904; born in Henderson, N. C., April 18, 1882; member of the Academy of Pathological Science, New York Academy of Sciences, American Association for the Advancement of Science and the American Institute of Homeopathy; president of the New York Homeopathic County Medical Society, 1926-1927; formerly assistant professor of gynecology at his alma mater; served as attending surgeon and chairman of advisory board and executive committee of the Park West Hospital; for many years on the staffs of the Metropolitan Hospital, Flower and Fifth Avenue Hospitals and St. Gregory's Hospital; died July 23, aged 63, of heart disease.

Charles Eaton Phillips ☉ Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; born in Millington, Ill., Feb. 3, 1877; fellow of the American College of Surgeons; founder of the Los Angeles Surgical Society; for eight years surgeon in Panama when the canal was built; served in the medical corps of the U. S. Army with the rank of major during World War I; lecturer and instructor to medical conference groups at military posts during World War II; senior surgeon at the Los Angeles County Hospital for twenty-four years; visiting surgeon, Hospital of the Good Samaritan, Cedars of Lebanon Hospital and Presbyterian Hospital-Olmsted Memorial; died June 14, aged 68.

Edward M. Amos, Indianapolis; Central College Physicians and Surgeons, Indianapolis, 1891; born in Kirkland, Ind., Feb. 14, 1866; member of the American Medical Association; honorary member of the Indiana State Medical Association; served as president of the Indiana Tuberculosis Association and of the Marion County Tuberculosis Association; member of the staff and formerly directed the tuberculosis clinic at the City Hospital; member of the staff and a trustee of the Sunnyside Sanatorium; on the staffs of St. Vincent's Hospital and the Methodist Hospital, where he died July 19, aged 79, of coronary occlusion.

Donald Adelbert Bartley ☉ Indianapolis; Indiana University School of Medicine, Indianapolis, 1914; specialist certified by the American Board of Ophthalmology; associate professor of ophthalmology at his alma mater; member of the American Academy of Ophthalmology and Otolaryngology; past president of the Indianapolis Ophthalmological and Otolaryngological Society; served in the medical corps of the Royal Army during World War I; on the staffs of the City Hospital, St. Vincent Hospital and the Methodist Hospital, where he died June 16, aged 58, of cardiac failure.

Leslie Shellabarger Brookhart ☉ Cleveland; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; veteran of the Spanish-American War and World War I; member of the Association of Military Surgeons of the United States; a charter member of the Cleveland Health Museum for many years; industrial physician and surgeon for the American Steel and Wire Company; staff member of St. Alexis and Woman's hospitals; for many years on the staff of St. Luke's Hospital, where he died June 24, aged 64.

Charles F. Anck, Philadelphia; Medico-Chirurgical College of Philadelphia, 1891; died April 2, aged 72, of intestinal obstruction, ruptured diverticulum of the sigmoid colon and peritonitis.

Hyman Bernstein ☉ Pittsburgh; Georgetown University School of Medicine, Washington, D. C., 1904; served on the staffs of the Montefiore and Passavant hospitals; died June 16, aged 68, of coronary disease.

Louis Bernstein, New York; University and Bellevue Hospital Medical College, New York, 1904; died April 24, aged 66.

Joseph Blickensderfer, Lebanon, Mo.; Omaha Medical College, 1887; served as city and county health officer while in New Philadelphia, Ohio; died in the Louise G. Wallace Hospital May 26, aged 82, of myocarditis.

Donald Hunter Clark, Redlands, Calif.; University of Texas School of Medicine, Galveston, 1899; died in the Community Hospital April 12, aged 69.

Angus Bertram Cowan ☉ Fresno, Calif.; Cooper Medical College, San Francisco, 1893; member of the American Academy of Pediatrics; specialist certified by the American Board of Pediatrics, Inc.; on the staffs of Burnett Sanitarium, General Hospital of Fresno County and St. Agnes Hospital, where he died April 20, aged 74, of congestive heart disease and coronary sclerosis.

Charles John Drueck ☉ Chicago; Northwestern University Medical School, Chicago, 1896; for many years associate professor of rectal diseases at the Post-Graduate Hospital and Medical School; at one time professor of physiology at the Illinois School of Dentistry; served on the staffs of the Chicago Memorial and Illinois Masonic hospitals; author of "Fistula of the Anus and Rectum"; died in St. Luke's Hospital June 30, aged 72, of peritonitis following an operation for carcinoma of the stomach.

Edwin Delta Ebricht ☉ Wichita, Kan.; Kansas City (Mo.) Medical College, 1896; past president of the Kansas Medical Society and Sedgwick County Medical Society; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association in 1926; served during World War I; on the staff of the Wesley Hospital; on the staff of the Wichita Hospital, where he was orthopedist in charge of Kansas Crippled Children Commission work and where he died May 13, aged 71, of carcinoma of the liver.

Harry M. W. Edmonds, Berkeley, Calif.; the Hahnemann Medical College and Hospital, Chicago, 1892; died April 4, aged 82.

Clarence Frederick Fowler ☉ Galveston, Texas; University of Texas School of Medicine, Galveston, 1914; on the staff of St. Mary's Infirmary; died June 30, aged 56, of coronary occlusion.

James C. Higgins, Philadelphia; Medico-Chirurgical College of Philadelphia, 1904; died in the Philadelphia General Hospital April 10, aged 69, of arteriosclerotic heart disease and auricular fibrillation.

Francis Bennett Hitchcock, Lewisburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1925; member of the American Medical Association; served on the staffs of the George F. Geisinger Memorial Hospital in Danville and the Evangelical Hospital; county medical director; vice president of the school board; died in Lake Worth, Fla., June 24, aged 56, of coronary thrombosis.

Leon Kimball Leigh, Chicago; National Medical University, Chicago, 1898; died June 13, aged 74, of coronary thrombosis and nephritis.

Everett Newton Lipe ☉ Fairfax, Okla.; Memphis (Tenn.) Hospital Medical College, 1902; served during World War I; died in St. Mary's Hospital, Rochester, Minn., June 1, aged 66, of thrombosis of the middle cerebral artery.

Lionel Hartsfield Love, Pacific Grove, Calif.; Columbia University College of Physicians and Surgeons, New York, 1898; died April 21, aged 73.

Victor Mahrer, Holland Patent, N. Y.; Medizinische Fakultät der Universität Wien, Vienna, Austria, 1906; died in the Faxton Hospital, Utica, April 23, aged 64.

Jacob Manting ☉ Detroit; University of Michigan Medical School, Ann Arbor, 1920; fellow of the American College of Surgeons; member of the surgical staffs of the Harper and Delray hospitals; died in Bloomfield Hills, Mich., June 14, aged 50, of heart disease.

Benjamin Meredith McIntire, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1911; member of the American Medical Association; served overseas during World War I; died May 27, aged 61.

Domenico Merendino, New Orleans; Regia Università degli Studi di Palermo. Facoltà di Medicina e Chirurgia, Italy, 1900; died in the Hotel Dieu May 6, aged 72, of cerebral hemorrhage and arteriosclerotic heart disease.

John W. Moffatt, Marietta, Ohio; Starling Medical College Columbus, 1891; died June 8, aged 79, of heart disease.

Horace Cary Morrow, Austin, Texas; Pulte Medical College, Homeopathic, Cincinnati, 1878; served as a member and as president of the Texas Board of Medical Examiners; died in Dallas June 26, aged 91, of myocardial degeneration.

Joseph Porter Myers, Edinburg, Ind.; Louisville (Ky.) Medical College, 1898; died June 10, aged 70, of coronary occlusion.

Henry Newton Nipple, Selinsgrove, Pa.; Jefferson Medical College of Philadelphia, 1898; died in the Community Hospital, Sunbury, April 19, aged 73, of myocarditis and bronchial asthma.

Cyrus W. Noble, Toledo, Ohio; Eclectic Medical Institute, Cincinnati, 1897; author of two books of verse entitled "Memories" and "Word Pictures"; died May 29, aged 71.

John W. Pierce, Suffolk, Va.; Howard University College of Medicine, Washington, D. C., 1910; died in the Lakeview Hospital May 28, aged 65, of heart disease.

Benjamin Franklin Steely, Louisville, Ill.; Hospital College of Medicine, Louisville, Ky., 1907; member of the American Medical Association; died in St. Anthony's Hospital, Effingham, May 18, aged 64, of heart disease.

William Paul Stetson, New Haven, Conn.; University of Vermont College of Medicine, Burlington, 1938; member of the American Medical Association; instructor of physical hygiene at the Arnold College; on the staff of the Grace Hospital, where he served an internship; flight surgeon for civilian pilots; member of the health committee of the New Hampshire Junior Chamber of Commerce; died June 21, aged 32, of seminoma of the right testicle with metastases.



LIEUT. ROBERT S. HURLBUT
(MC), U.S.N.R., 1912-1945



LIEUT. HELMUT WILLIAM FESCA
M. C., A. U. S., 1917-1944



LIEUT. BURTON ADAM HALL, M. C.,
A. U. S., 1912-1944

Fred Porter Nevius ☉ Oakland, Calif.; Michigan College of Medicine and Surgery, Detroit, 1906; served during World War I; for many years city physician of Antioch; died June 14, aged 62.

Emma Barker Steyner, Williamson, N. Y.; the Hahnemann Medical College and Hospital, Chicago, 1884; died May 20, aged 85, of carcinoma of the large bowel and malignant cachexia.

KILLED IN ACTION

Robert Satterlee Hurlbut, Cambridge, Mass.; Harvard Medical School, Boston, 1938; diplomate of the National Board of Medical Examiners; served an internship and residency at the Massachusetts General Hospital; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on Oct. 19, 1942; following service at the Chelsea Naval Hospital at the Office of Medical Officer Procurement, First Naval District, and as physician at the Harvard Naval Dispensary, began sea duty on the *Halligan* in September 1943; saw service in the Atlantic and in North Africa; was in invasion actions for more than a year in the Pacific; promoted to lieutenant; killed in action March 26, aged 33, when the destroyer *Halligan* was sunk off Okinawa.

Helmut William Fesca, San Francisco; University of California Medical School, San Francisco, 1943; interned at the Franklin Hospital; member of the American Medical Association; began active duty as a first lieutenant

in the medical corps, Army of the United States, on Dec. 26, 1943; killed in France July 27, 1944, during an American dive bomber attack on a German train in which he was a prisoner, aged 27.

Burton Adam Hall, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1938; interned at St. Luke's and Children's Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 24, 1942; attached to the air corps; in November 1942 graduated as a flight surgeon from the School of Aviation Medicine, Randolph Field, Texas; assigned to the first medical air evacuation transport squadron to function in any theater of war; aboard a transport aircraft which departed Jan. 13, 1943, for Guadalcanal, Solomon Islands, and failed to reach its destination en route to Efate, New Hebrides; posthumously awarded the Purple Heart; officially declared dead Jan. 13, 1944, aged 31.

Mack Milton Strickland, Selma, Ala.; University of Alabama School of Medicine, 1900; died in the King Memorial Hospital May 16, aged 69, of cardiac failure due to hypertensive heart disease.

Albert Tower Summers, Mattoon, Ill.; Kentucky School of Medicine, Louisville, 1903; member of the American Medical Association; on the staff of the Memorial Methodist Hospital; died in the Doctors Hospital, Washington, D. C., June 2, aged 67, of coronary thrombosis.

William Zerns Suplee, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1897; died June 1, aged 70, of heart disease.

Merrick Ward Swords, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1907; formerly secretary of the state board of health; for many years associated with the city board of health; in 1916 appointed chief of staff of the genitourinary department of the Charity Hospital; served as associate editor of the *Southern Medical Journal*; died in June, aged 61, of coronary thrombosis.

Charles A. Talbot, Waynesville, Mo.; Northwestern University Medical School, Chicago, 1904; member of the American Medical Association; died in Pryor, Okla., July 31, aged 65, of cerebral hemorrhage.

James J. Toalson, East Alton, Ill.; St. Louis College of Physicians and Surgeons, 1897; served on the staff of St. Francis Hospital in Peoria; died May 30, aged 72, of cerebral arteriosclerosis.

Fletcher Jackson Van Meter ☉ Talmage, Calif.; Drake University College of Medicine, Des Moines, 1906; fellow of the American Psychiatric Association; served during World War I; formerly on the staffs of the Clarinda (Iowa) State Hospital and the Norwalk State Hospital in Norwalk; clinical director of the Mendocino State Hospital; died August 4, aged 61, of coronary occlusion.

William George Wander ☉ Detroit; Washington University School of Medicine, St. Louis, 1919; member of the American Academy of Dermatology and Syphilology; past president of the Detroit Dermatological Society; associate dermatologist at St. Mary's Hospital; on the staff of St. Joseph's Mercy Hospital, where he died May 21, aged 56, of heart disease.

Robert Taylor Wheeler ☉ Brooklyn; College of Physicians and Surgeons, New York, 1892; served on the staff of the Bethany Deaconess Hospital; June 5, aged 76, of cerebral hemorrhage.



LIEUT. FRANK REICHENBACH
(MC), U.S.N.R., 1909-1944



LIEUT. VICTOR HERBERT KARPASS
M. C., A. U. S., 1909-1942



CAPTAIN KARL MARTIN RAGUE
M. C., A. U. S., 1917-1945

Frederick Vail Thompson, Belmar, N. J.; Long Island College Hospital, Brooklyn, 1890; died in the New Jersey State Hospital, Marlboro, May 18, aged 78, of arteriosclerotic cardiovascular renal disease.

Waddy Thompson Wilkinson Jr., Coushatta, La.; University of Arkansas School of Medicine, Little Rock, 1931; interned at Missouri Pacific Hospital, Little Rock; died May 28, aged 42.

KILLED IN ACTION

Frank Reichenbach, Watertown, Conn.; Tufts College Medical School, Boston, 1933; member of the American Medical Association; on the associate surgical staff at the Waterbury Hospital, Waterbury, where he served an internship and a residency and where he took an active part in the tumor clinic, serving as chairman for two years; served a residency at the Westfield State Hospital in Westfield, Mass.; organized the outpatient follow-up tumor clinic at the Chase Memorial Dispensary and was instrumental in organizing a biopsy service in the Waterbury area; fellow of the American College of Surgeons; formerly health officer of Woodbury; began active duty as a lieutenant in the medical corps of the U. S. Naval Reserve on July 5, 1943; his first year was spent at Davisville and Newport, R. I., and Lido Beach, Long Island; in July 1944 left for overseas, where he was stationed in England and France; senior surgeon to the 114th Construction Battalion; killed in France Nov. 6, 1944, aged 35.

Victor Herbert Karpass, Chicago; University of Illinois College of Medicine, Chicago, 1935; member of the American Medical Association and the Missouri State Medical Association; interned at St. Mary's Hospital in Minneapolis and the Woodlawn Hospital in Chicago; served a residency at the Anna State Hospital in Anna, Ill.; began active duty as a first lieutenant in the medical corps, Army of the United States, on Feb. 24, 1942; awarded posthumously the Distinguished Service Cross for heroism; killed in action in Africa Nov. 8, 1942, aged 33.

Karl Martin Rague, Manchester, Mich.; University of Michigan Medical School, Ann Arbor, 1942; interned at the Robert Packer Hospital in Sayre, Pa.; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 29, 1943; promoted to captain; mortally wounded at Bastogne, Belgium, on January 9; died at 101st Evacuation Hospital in Eastern France January 10, aged 27.

Bureau of Investigation

SOME MISCELLANEOUS MEDICAL FRAUDS

A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of *The Journal*. Following are brief abstracts of some fraud orders not dealt with previously:

Hema-Tone Laboratory and John B. Swabey, M.D., N.D.—From Muskegon, Mich., Dr. Swabey conducted a mail-order business under the title mentioned, selling certain preparations comprising his "New Natural Home Treatment," which he represented to overcome any disease of the prostate gland, regardless of the age of the user or chronicity of the condition, as well as kidney and bladder disorders, and to restore persons afflicted with "male weakness" to "manly strength." Further, he represented that he could correctly diagnose the physical condition of his mail-order inquirers and properly prescribe treatment on the basis of a urinalysis and replies submitted in a questionnaire which he sent out. Advertising was done in periodicals of national circulation and through written and printed matter sent through the mails. In this Dr. Swabey was claiming as recently as 1942: "It has become my privilege to teach and demonstrate my theory of regeneration of the prostate gland. . . . In April 1934 I published the first announcement in medical history, of a theory and plan of treatment designed to assist Nature in the process of regeneration of the prostate gland. . . . Prior to the above date mentioned, medical science had no adequate treatment to offer for the non-specific diseases of the uro-genital system. And so far as I know have nothing of scientific value to offer now. . . . These good and faithful doctors, leaders of the Medical Profession, and eminent teachers of Medical Practice, have admitted that Medical Practice, as we know it, is useless in such cases. This left an open field for my research work. . . ." After the Post Office Department had thoroughly investigated Dr. Swabey's activities, it notified him to be present at a hearing in November 1943 and show cause why his business should not be declared a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. He neither put in an appearance nor sent counsel to represent him. The testimony of a chemist and a physician, both appearing as witnesses for the government at the hearing, resulted in the recommendation that a fraud order be issued against the Hema-Tone Laboratory and John B. Swabey, M.D., N.D., and this was accordingly done. It is worth noting that a few weeks after the hearing Dr. Swabey died of a disorder of the prostate and bladder, the very organs for which his "treatment" was promoted.

Herb-Vite Company and Rite-Wate Company.—These were the names variously used by a New York concern that sold "Herb-Vite Tablets" and "Rite-Wate Tablets," which were identical in composition, according to the ingredients named on their respective labels, and which emanated from the same address. With the first-named product came a booklet presenting the "Herb-Vite Reducing Method." The names of the backers of this concern were not reported. The Post Office Department, after investigating the business, charged it with being a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. Among these were that the Herb-Vite Reducing Method would enable obese persons, including "difficult" cases, to eliminate their excess fat and attain a "slim" and "lovely" figure quickly, harmlessly, and without the necessity of a restricted diet; that the users could effect this reduction while still eating plenty of food; that the essential action of the Herb-Vite Tablets was soothing, non-habit-forming, absolutely harmless, and produced laxation without griping or irritation; and that persons using these tablets would obtain the same alleged beneficial results as those whose purported testimonials were set forth in the company's circulars. At the hearing of the case in November 1943, the respondents sent no one to represent them. A chemist for the Food and Drug Administration, appearing as a witness for the government, testified that the ingredients, as declared on the label—government, testified that the ingredients, as declared on the label—were colocynth, jalap, podophyllin, leptandrin, gentian and peppermint—were confirmed by his own examination, except that he found no peppermint present. Another witness for the government was a Senior Medical Officer of the Food and Drug Administration, who testified that he was familiar with the actions of the ingredients named, and that this mixture of irritant laxatives would not enable obese persons to eliminate their excess weight and obtain a slim figure quickly, harmlessly and without following a restricted dietary regimen. He also showed, among other things, that regardless of the laxative effect of the tablets, the user's weight would be practically the same if the quantity of food consumed was not materially reduced. Further, his testimony brought out that the drugs in question produce griping and irritation and, on continued use, a laxative habit, nor are they "absolutely harmless," as they would be dangerous in certain conditions, such as appendicitis, stomach ulcers, gallstones and other inflammatory disorders of the intestinal tract. At this hearing the further fact was emphasized that an inquiry addressed to the Herb-Vite Company had brought a reply from the Rite-Wate Company, and when an order was sent to the latter, it mailed the inquirer a box of "reducing tablets" bearing a formula and directions for use identical with those on the box of Herb-Vite Tablets. On May 4, 1944, the Post Office Department issued a fraud order against the Herb-Vite Company and the Rite-Wate Company at New York, debarring them from further use of the mails, on the ground that they had conducted a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises.

Mrs. Nancy Young.—From Alba, Texas, this person sold through the mails what she represented to be a cure for cancer, dropsy, pellagra, female diseases, rheumatism and kidney and bladder disorders. To one inquirer she wrote in part: "I treat everything that any one could suffer with Cancer & Pelagra Dropsy female trouble of all Kind Kidney & Bladder Trouble Rheumatism & in facts everything. . . . My Cancer Cure is Wonderful. . . . Hoping to hear from you Soon." Because of this obvious abuse of the mails and imposition on the public, the Post Office Department, after due investigation of the treatment and its promotion, notified Mrs. Young to show cause why a fraud order should not be issued against her. She neither put in an appearance at the hearing of the case held in Washington nor sent anyone to represent her. On this occasion a chemist and a microanalyst of the Food and Drug Administration, witnesses for the government, testified regarding their respective chemical and microscopic examinations of each of the packages of capsules and herbs sent out by Mrs. Young in response to two orders for her "cancer treatments." The witnesses showed that the two treatments purchased were essentially identical, each consisting of four separate packages. The first of these contained gelatin capsules in which were found podophyllum, powdered root bark and stems of dogwood. The second contained capsules of powdered podophyllum. The third and fourth were practically identical, consisting of fragments of root bark, stems of dogwood, and two species of mint, with small amounts of sodium and potassium oxides, iron, calcium, sulfate and chlorides. These were to be made into a solution, and accompanying each package were handwritten instructions on plain paper. Another government witness, a Senior Medical Officer of the Food and Drug Administration, testified that he was familiar with the modern scientific medical treatment of cancer and the other diseases played up by Mrs. Young; that a cancer is a malignant tumor which will in due time result in death unless scientifically treated by surgery, X-ray or radium, and that there is no known drug, herbal treatment or dietary measure which will cure the condition. Hence Mrs. Young's nostrums would be absolutely worthless in treating cancer. Accordingly, a fraud order was issued on Oct. 3, 1944, against Mrs. Nancy Young.

Correspondence

HEPATITIS FOLLOWING BLOOD OR PLASMA TRANSFUSION

To the Editor:—In the paper on "Hepatitis Following Blood or Plasma Transfusions" by Capt. E. M. Rappaport in the issue of July 28 it is stated that those blood donors in the preicteric stage or with hepatitis without obvious jaundice constitute the greatest menace as propagators of hepatitis. It is further stated that "in view of the widespread incidence of infectious hepatitis a transient healthy carrier state might exist among some volunteer blood donors and detection of such depositors would be impossible."

For the detection of those in the preicteric stage, the following suggestions were made: (1) "Recording the lot number of each flask of plasma at the time of its use, thus permitting ultimate withdrawal of contaminated batches"; (2) "that quantitative bilirubin determinations be performed routinely on all patients who have received plasma or blood from doubtful sources at monthly intervals from the third to the sixth month after transfusion."

It seems to me that a more effectual method would be to detect the possible source of jaundice before it has been allowed to operate by icterus index or van den Bergh tests on donors' blood rather than to seek to find the responsible lots of blood or plasma after cases of hepatitis have developed.

The icterus index is a simple test and entirely reliable when fasting blood is used. It is exceedingly rare for the icterus index to be above 6 in the normal subject in the fasting state. The raised index from carotenemia in the normal individual disappears in four to five hours after eating. Persistent carotenemia presumably indicates some liver dysfunction and is therefore abnormal. It may possibly occur in infectious hepatitis; accordingly, in this respect the icterus index, which measures the color of the serum only, may be a more suitable test than the van den Bergh reaction. The so-called physiologic hyperbilirubinemia is rare and may be considered negligible in this situation.

It is the practice of the Red Cross to give orange juice just before venipuncture. What effect, if any, this would have on the icterus index could be easily ascertained. Usually the

icterus index rises for a few hours after meals, in some cases 1 or 2 points. Thus a high normal reading of 6 may be 7.5 to 8 after eating. The zone of latent jaundice, or the preicteric stage, lies between 6 and 15 in the fasting state. Clinical jaundice appears with an icterus index of 15.

ALICE R. BERNHEIM, M.D., New York.

INFECTIOUS HEPATITIS

To the Editor:—In the article of Col. M. H. Barker, Major R. B. Capps and Major Frank W. Allen on infectious hepatitis (*THE JOURNAL* August 4, p. 997) the statement is made "The oral hippuric acid liver function test in our hands has shown practically no correlation with the clinical condition of the patient. Thus the test frequently gave relatively normal results during the acute stage and very low results in the convalescent period." This is rather surprising, since in my early studies of the test I found it consistently low in catarrhal jaundice, which many consider closely related to the entity. Recently Rennie (*Am. J. M. Sc.* 210:18 [July] 1945) in 39 cases of infective hepatitis found the output of hippuric acid much reduced in 27 during the acute stage. In many patients the test was run serially over a period of weeks, with strikingly consistent results. Rennie further found that when the plasma bilirubin was greater than 10 mg. per hundred cubic centimeters the hippuric acid synthesis and the levulose tolerance test were invariably impaired and the plasma albumin was below normal.

The fact that the hippuric acid as well as other tests are often low during the convalescent stage is of clinical significance especially in the prognosis and perhaps in establishing a criterion of complete recovery.

ARMAND J. QUICK, M.D., Milwaukee.

ALCOHOL AND PANCREATIC NECROSIS

To the Editor:—The editorial (May 12, p. 144) on "Intravenous Alcohol Anesthesia as Used in Russia" and other recent work (Moore, Daniel C., and Karp, Mary: *Intravenous Alcohol in the Surgical Patient, Surg., Gynec. & Obst.* 80:523 [May] 1945) suggest another revival of interest in alcohol as an anesthetic agent. It seems in order, therefore, to call attention again to a poorly understood and, in my opinion, not widely known relationship between alcohol and acute (as well as chronic) pancreatic necrosis (Weiner, H. A., and Tennant, Robert: A Statistical Study of Acute Hemorrhagic Pancreatitis, *Am. J. M. Sc.* 196:167 [Aug.] 1938). Statistically, the relationship is clearcut, though unimpressive in view of world alcohol consumption figures. Occasionally it is dramatic and unforgettable.

H. A. WEINER, M.D.

2d General Hospital, A. P. O. 513, New York.

LOEFFLER'S SYNDROME AFTER CUTANEOUS HELMINTHIASIS

To the Editor:—The report of Wright and Gold in *THE JOURNAL*, August 11, of Loeffler's syndrome following cutaneous helminthiasis adds a hitherto unreported etiologic factor and supports the view that this syndrome is an allergic phenomenon. For the sake of completeness, it is worthy of note that the first report of Loeffler's syndrome in the United States known to me indicated that the allergic response in the case observed (Ellis, Ralph V., and McKinlay, C. A.: *Allergic Pneumonia, J. Lab. & Clin. Med.* 26:1427 [June] 1941) was due to the oral administration of a sulfonamide compound.

C. A. MCKINLAY, M.D., Minneapolis.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Revocation of a "Duplicate" License Fraudulently Obtained to Replace a Nonexistent "Original" License.—Jacobson, a graduate of Middlesex College of Medicine and Surgery, obtained in 1936 from the Rhode Island Board of Examiners in Medicine a so-called "duplicate" certificate of authority to practice medicine to replace a certificate that he claimed had been issued to him on Oct. 11, 1934 by the state public health commission, which at that time had the authority to issue such certificates, after examination but which he had subsequently lost. Later the board instituted proceedings to revoke the duplicate certificate on the ground that it had been obtained by fraud, since no original certificate had ever been issued to him. After due notice and hearing the board ordered the so-called duplicate certificate revoked, and Jacobson appealed to the Supreme Court of Rhode Island, which in accordance with the applicable law heard the matter *de novo*.

Jacobson contended that the Supreme Court could not properly hear and decide the appeal because in the hearing before the board there was not a sufficient specification of the fraud with which he was charged to have been guilty in procuring the so-called duplicate certificate. The court, however, found no merit in the contention. The evidence, said the Supreme Court, discloses a chain of facts and circumstances which lead to the conclusion that Jacobson, through fraud or deception, obtained his certificate to practice medicine in Rhode Island. When the examinations to which Jacobson claimed he submitted and passed were conducted—Oct. 4 and 5, 1934—according to the rules of the department of public health, the medical college from which Jacobson graduated was not recognized as an approved college whose graduates were permitted to submit to examination, and there is no evidence that that requirement had been waived in favor of Jacobson to permit him to take the examination. There were introduced in evidence six manila envelopes, numbered 2193 to 2198 inclusive, taken from the files of the state department of health pertaining to the examination given on the dates referred to. None of the numbers on these envelopes is followed by a letter. There was introduced in evidence another envelop numbered "2197-A" which bore Jacobson's name and on the contents of which he relied as showing that he took and passed that examination and received a valid certificate. On each of the envelopes other than the one bearing Jacobson's name the number was shown in large heavy figures, bluish green, all of the same size, and plainly not typewritten. On the envelop bearing Jacobson's name the number is much smaller, with less heavy figures, and is plainly typewritten in black. To our minds, said the court, these facts strongly indicate that the envelop numbered 2197-A purporting to relate to Jacobson had not been filed before or at the time of the examination of Oct. 4 and 5, 1934 but had been filed at some time thereafter.

It is also noteworthy, continued the court, that in every one of these envelopes except the one bearing Jacobson's name there is a receipt from the state treasurer's office showing the payment, into the state treasury by the applicant for a license, of a \$20 examination fee, while no such receipt is among the papers in the envelop bearing Jacobson's name. The medical practice act in force at that time required any applicant presenting himself for examination to present to the board of examiners a receipt from the general treasurer that he had paid the required \$20. Jacobson testified that before taking the examination he paid \$20 to some unknown, unidentifiable employee in the office of the state board of health and that he received no receipt therefor. The physician who was director of public health during the period in question testified that the return of

such a receipt to the department of health was a prerequisite that was never waived and that he gave out the blank examination books only to applicants who showed receipts from the state treasurer. As further indicating that Jacobson never took or passed the examination in question, the physician just referred to testified that during his term of office it was the custom to give out in writing to certain newspapers, including the *Providence Journal*, the names of applicants who had passed the examination for certificates of authority for the practice of medicine and to check up on the names of those who were reported in these newspapers as having passed such examination and to call any error to the attention of the newspapers so that it could be corrected. A copy of the *Providence Journal* for Oct. 12, 1934 was then introduced in evidence containing a list of the names of nine persons who had successfully passed the examination of Oct. 4 and 5, 1934 and Jacobson's name was not in that list. Further, a physician who was a member of the state public health commission at the time of the examination in question testified that he gave the examination in one of the subjects and that Jacobson did not take that examination.

Jacobson's main reliance to prove that he had in fact been issued the original certificate in dispute was an exhibit containing certain papers enclosed in a manila envelop marked "State Cert. No. 2197-A Name Jacobson, Charles Date Issued 10-11-34." On the back of one of the documents contained in that envelop the following appeared: "State Certificate No. 2197-A. Issued October 11, 1934 Rhode Island State Public Health Commission . . . Application of Charles Jacobson Application received Sept. 3, 1934 Fee received for examination . . . 193. Appeared for examination Oct. 4, 1934 . . . Graduate from Middlesex 1932 Photograph received Sept. 3, 1934 Average per cent. obtained 81.5." These last figures had been put in with a lead pencil. In the envelop was also a so-called "application" in the same form as the applications that were filed in the other manila envelop referred to containing the applications and other papers of persons who admittedly passed the examination of Oct. 4 and 5, 1934 and who subsequently received licenses. The purported application of Jacobson showed, among other things, what purported to be a statement of the percentages at which his answers were rated by the examiners in the separate subjects. This statement bore the date "October 11, 1934." At the end of the document was an unframed photograph of Jacobson. On the first inside page of the purported application Middlesex College of Medicine and Surgery was written in as the medical college from which Jacobson was graduated and on the next line below appeared the date of graduation, written in ink, "June 15, 1932." But, said the court, an inspection of the writing showed that the letters "une" in June, the figure "5" in the "15" and the figure "2" in the "1932" had been written in after the erasure of previous letters and figures. The envelop also contained an original letter dated Feb. 26, 1937 from the registrar of Middlesex College to the division of examiners which, in part, said "Please be advised that Dr. Charles Jacobson was graduated with the degree of Doctor of Medicine from the Middlesex College of Medicine and Surgery on August 7, 1933." The purported application also included a jurat bearing the signature and seal of Greenspan, a notary public, and stating that the application was signed and sworn to before him on the "3d. day of Sept. A. D. 1934," the open space between the 3 and the 4 being large enough for another figure. Greenspan had first testified that he could not recollect the date on which he took this acknowledgment, and on request he wrote a figure 4 on a sheet of paper which he admitted was obviously different from the figure 4 that appeared in the jurat. Later in the course of the hearing the state toxicologist testified, as an expert in restoring erased handwriting, that he had a chemical which would restore erased writing if the ink used contained iron. He then applied this writing to the open space between the figures 3 and 4 in the year date in the jurat referred to and as a result a figure was brought into view which was clearly not a 4 and which was or very

closely resembled a figure 5 and which the witness testified had been removed by a chemical ink eradiator. Greenspan later testified that that figure looked like his 5 and that he had not used an ink eradiator to change the date he had written. Thus, concluded the court, the evidence as to the date of the jurat, even if considered alone, makes it extremely improbable that Jacobson's application was filed before the examination was given in October 1934.

Other evidence was discussed by the court tending to show that Jacobson in fact had never submitted to the examination in question nor received a certificate. There was, for instance, produced a photostatic copy of an application by Jacobson to the board of registration in medicine in Massachusetts in 1935 in which in response to a question as to states in which he was licensed to practice medicine he did not mention Rhode Island. The Supreme Court thought it extremely unlikely that he would not have answered Rhode Island in answer to that question if he had in fact received such a license. Again there was testimony from a physician who had been examined on Oct. 4 and 5, 1934 and who had been licensed thereafter that a short time before the hearing before the board Jacobson had asked him to testify that he of his own knowledge knew that Jacobson had taken the examination and that he informed Jacobson that he could not do so.

It seems obvious to us, continued the court, that some employee of the department of public health or some other person having knowledge of its methods and access to its records must have cooperated with Jacobson in preparing the papers on which he mainly relied and in causing the issuance to him of the so-called duplicate certificate, but there is no reason to go into that phase of the matter, as it is not necessary to do so to establish Jacobson's fraud. We find that the board of medical examiners proved by credible evidence that Jacobson did not take the examination of Oct. 4 and 5, 1934; that no original certificate was issued to him; and that such so-called "duplicate" certificate of authority to practice medicine was obtained by fraud and should be revoked. The order of the board revoking the duplicate certificate was accordingly affirmed. —*Board of Examiners in Medicine v. Jacobson*, 42 A. (2d) 887 (R. I., 1945).

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, Sept. 8, page 151.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, Nov. 12-14. Part III, New York City, Oct. 15-17; Boston, Oct. 16-17. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Various centers, Jan. 18. Final date for filing application is Oct. 20. *Oral*. Various centers, Oct. 1946. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 24.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, May 27. Final date for filing application is Feb. 1. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written*. Part I. Various centers, Feb. 2. Final date for filing application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Jan. 18-22 and Los Angeles, Jan. 28-Feb. 1. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 3-6 (canceled). Spring 1946. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Oct. 19. *Oral*. New York, Dec. 7-8. Sec., Dr. C. A. Aldrich, 115½ First Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY. *Written*. Part I. Spring 1946. Final date for filing application is Dec. 1. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*. Various centers, Dec. 9. *Oral*. Chicago, February 1946. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

14:285-312 (June) 1945

- Predicament of Modern Medicine. M. S. Davie.—p. 285.
Challenge to Medical Profession. W. H. McCaslan.—p. 288.
Study of 838 Inmates of Partlow State School, with Particular Reference to Training and Parole. R. C. Partlow.—p. 290.

American Heart Journal, St. Louis

29:661-778 (June) 1945

- *Subacute Bacterial Endocarditis in the Aged. F. D. Zeman.—p. 661.
Electrocardiogram and Cardiac State in Active Sickle Cell Anemia. T. Winsor and G. E. Burch.—p. 685.
Normal Human Ventricular Gradient: V. Relationship Between AQRS and G, and Potential Variations of Body Surface. R. Ashman, F. P. Ferguson, Alice I. Gremillion and E. Byer.—p. 697.
Diphtheritic Myocarditis, with Report of 2 Cases. D. Ball.—p. 704.
Use of Augmented Unipolar Left Leg Lead in Differentiation of Normal From Abnormal Q Wave in Standard Lead III. G. B. Myers and B. G. Oren.—p. 708.
Delayed Conduction in Bundle Branches: Report of 2 Cases in Which PR Interval Increased with Changes from Left to Right Bundle Branch Block. W. Dressler.—p. 728.
Simple Switching Device to Facilitate Recording of Electrocardiograms Embodying Multiple Types of Leads. C. B. Ethridge and M. H. Stolar.—p. 733.
*Microscopic Lesions of Left Atrial Endocardium in Chronic Rheumatic Heart Disease. S. Koletsky.—p. 739.

Subacute Bacterial Endocarditis in the Aged.—A review of 700 postmortem examinations of persons aged 60 years and over revealed a surprisingly high incidence of acute and subacute bacterial endocarditis. There were 18 cases of subacute bacterial endocarditis in the age range 60 to 87 observed in the wards of the Mount Sinai Hospital during the past ten years. Zeman emphasizes the high incidence of rheumatic valvular lesions as the basis for the endocarditis, with the occurrence in this role less frequently and in the order named of arteriosclerotic, syphilitic, congenital and thyrotoxic heart disease. Approximately one half of the cases exhibited a typical, though often modified, clinical picture. A group of more difficult cases may be subdivided into bacteria free cases, characterized predominantly by heart failure, splenomegaly, anemia and renal insufficiency, and into cases which completely elude precise diagnosis owing to the masking of the endocarditis by involvement of the central nervous system and by a variety of other clinical findings which tend to distort diagnostic emphasis. Clinical recognition of subacute bacterial endocarditis depends on the physician's constant effort to achieve diagnostic accuracy in the aged by utilizing for them the same careful observation and the same methods of precision commonly employed for the young.

Lesions of Left Atrial Endocardium in Chronic Rheumatic Heart Disease.—Sections of the left atrium were obtained from 100 nonrheumatic and 100 rheumatic hearts. The rheumatic hearts were the seat of chronic or healed disease and showed no active gross lesions. Seventy-five showed mitral stenosis and 25 had nondeforming mitral valvulitis. In the 100 hearts with chronic rheumatic disease there was gross involvement of the left atrial endocardium in 42 cases and microscopic involvement in 60 cases. Certain microscopic lesions of the endocardium of the left atrium, which occur rarely if at all in normal hearts or in other types of heart disease, form practically pathognomonic stigmas of rheumatic endocarditis. In the endocardium proper these include vascular penetration, cellular exudate and cellular hyperplasia of connective tissue; in the subendocardium they include excessive vascularity and cellu-

lar exudate, the presence of small arteries with musculoelastic wall and Aschoff nodules. Other lesions, such as subendothelial plaque, endocardial fibrosis and increase in thickness of smooth muscle, may be highly suggestive of rheumatic disease but require differentiation from corresponding alterations in structure of the normal endocardium. Rheumatic endocarditis of the left atrium usually occurs in hearts with deformity of the mitral valve and with more or less widely distributed microscopic rheumatic stigmas, especially of the valves. In occasional instances, however, atrial stigmas aid in establishing rheumatic fever as the cause of equivocal valvular disease.

American J. Digestive Diseases, Fort Wayne, Ind.

12:219-254 (July) 1945

- Gerontology. H. W. Soper.—p. 219.
Newly Isolated Active Principles of Senna: Preliminary Report. H. A. Rafsky, B. Newman and S. Seidenberg.—p. 221.
Splenic Abscess: Three Cases of Pyogenic Infection. A. Bassler.—p. 223.
Mechanism of Water Balance in Bowel and Its Control. H. Gauss.—p. 224.
Statistical Study of Surgery of Biliary Tract Disease Over Period of Five Years Without Supervised Routine Management. P. V. Prewitt.—p. 231.
Statistical Study of Surgery of Biliary Tract Disease over Period of Five Years Under Supervised Routine Management. P. V. Prewitt.—p. 237.
Glossitis and Cheilosis Healed Following Use of Calcium Pantothenate. H. Field Jr.; M. E. Green and C. W. Wilkinson Jr.—p. 246.
*Fatty Hepatomegaly with Pancreatic Fibrosis Controlled by Lipocaic. F. Browne and W. Thomas.—p. 250.

Fatty Hepatomegaly with Pancreatic Fibrosis Controlled by Lipocaic.—For the past eighteen months Browne and Thomas have observed a patient who exhibits many of the signs and symptoms of lipocaic deficiency. The administration of lipocaic, furnished by Dr. Dragstedt's laboratory, has produced a striking decrease in the size of the enlarged liver, stabilized the fat concentration of the blood and improved the liver function. There was gain in weight, restoration of appetite and a sense of well-being. The withdrawal of lipocaic has repeatedly caused the reestablishment of the syndrome. The appearance of pronounced fatty infiltration of the liver in this patient together with evidence of extensive fibrosis of the pancreas as revealed at the exploratory operation suggests an interrelationship between the two phenomena. Exacerbation of the hepatomegaly due to the ingestion of large amounts of alcohol, which occurred several times in this case, is interesting in view of Connor's observations that fatty infiltration of the liver represents an early stage in the development of cirrhosis. The complete recession of the hepatomegaly and striking clinical improvement produced by the administration of lipocaic presents evidence that a deficiency of this secretion due to the fibrosis of the pancreas was the underlying cause of the disease.

American Journal of Physiology, Baltimore

143:635-740 (May) 1945

- Tolerance to Arsenic Trioxide in Albino Rat. E. R. Norris and H. W. Elliott.—p. 635.
In Vitro and In Vivo Studies of Effect of Arsenite on Respiration of Rat Tissues. H. W. Elliott and E. R. Norris.—p. 639.
Nature and Mechanism of Shock Produced by Intravenous Injection of Chymotrypsin. H. J. Tagnon, A. R. Weinglass and W. E. Goodpastor.—p. 644.
Transient and Permanent After-Effects of Exposure to Oxygen at High Pressure. J. W. Bean and E. C. Siegfried.—p. 656.
Chloride Equilibrium in Muscle. W. S. Wilde.—p. 666.
Denervation Atrophy of Bone and Muscle: Examination of Effect of Choline and Some Further Observations on Metabolism of Phosphorylcholine and Deposition of P³² in Bone. R. F. Riley, Beatrix McCleary and Ruth E. Johnson.—p. 677.
Comparative Study of Cholinesterase Activity of Vertebrate Nervous System, with Especial Reference to Its Relationship to Motor Ability. V. F. Lindeman.—p. 687.
Stimulation of Livability and Glycolysis by Additions of Glucose to Egg Yolk-Citrate Diluent for Ejaculated Bovine Semen. G. W. Salisbury and N. L. Vandemark.—p. 692.
Effects of Blood Flow and Anoxia on Spinal Cardiovascular Centers. R. S. Alexander.—p. 698.
Determination of Cardiac Output in Dog by Fick Procedure. R. Shore, J. P. Holt and P. C. Knoefel.—p. 709.
Absorption, Distribution and Excretion of Thiourea. R. H. Williams and Gloria A. Kay.—p. 715.
Electrocardiographic Localization of Myocardial Infarcts by Injury Currents and Ventricular Extrasystoles. H. E. Hoff and L. H. Nahum.—p. 723.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

53:527-640 (June) 1945

- Roentgen Examination of Urinary Tract. J. C. Bell, G. W. Heublein and H. J. Hammer.—p. 527.
- *Aerosinusitis: Clinicoroentgenologic Study. M. Schneider.—p. 563.
- Solitary Myeloma of Frontal Bone. C. W. Schwartz.—p. 573.
- *Disseminated Calcified and Bony Nodules in Lungs Associated with Mitral Disease. A. Grishman and I. J. Kane.—p. 575.
- Malignant Giant Cell Tumor of Lung. A. M. Gnassi and P. Price.—p. 582.
- Intussusception of Stomach. M. H. Poppel and S. T. Herstone.—p. 585.
- Military Photoroentgen Technic Employing Optimum Kilovolt (Peak) Principles. A. W. Fuchs.—p. 587.
- Roentgen Therapy for Acute Encephalitis. U. V. Portmann and R. Lough.—p. 597.

Aerosinusitis.—According to Schneider, aerosinusitis is a dramatic disorder of the paranasal sinuses characterized by traumatic, sudden, severe pain localized over the affected sinuses and occurring during descent from altitude in an aircraft or altitude chamber. Its immediate cause is apparently sudden obstruction of a sinus ostium, as by a mucous plug or loose mucosal membrane, thereby sharply and radically increasing the relatively negative intrasinus pressure which presumably exists already in the sinus during descent. The intense pain of this condition is attributed to sudden ballooning of the sinus mucoperiosteum induced by the great negative pressure. Edema and transudation in the sinus may occur and may be accompanied by hematoma and/or frank hemorrhage. The x-ray appearance and the history are characteristic in this disorder. It is also possible that the pressure gradient may lead to an infective sinusitis by forcing aspiration of infected nasal secretions into a sinus previously damaged by infection.

Calcified and Bony Nodules in Lungs Associated with Mitral Disease.—Grishman and Kane draw attention to the coexistence of disseminated calcified and bony lesions in the lungs and rheumatic mitral disease. The present report is an attempt to correlate the x-ray, pathologic and clinical findings in 8 cases. The lesion was discovered in 4 cases preceding the first episode of congestive heart failure. The pathogenesis of the pulmonary lesions is not clear. There is no microscopic evidence that pulmonary arteritis or small pulmonary infarctions are precursors of such lesions. They suggest that careful inspection of the lungs in cases of adolescent or preadolescent rheumatic fever may yield significant data. The clinical histories of the reported cases suggest strongly that the precursor to these lesions must appear early in rheumatic fever and probably in childhood. The triad of symptoms that is important in the differentiation from tuberculosis is (1) the predominantly basal bilateral distribution, (2) the association with evidence of mitral stenosis and (3) the absence of other evidence of pulmonary tuberculosis.

Annals of Internal Medicine, Lancaster, Pa.

22:773-924 (June) 1945

- Hirsutism in Females: Clinical Study of Its Etiology, Course and Treatment. G. W. Bissell and R. H. Williams.—p. 773.
- Penicillin Treatment of Sulfonamide Resistant Gonorrhea: Results of 500 Cases Treated with 50,000 Units of Penicillin. A. I. Josey and F. E. Kirshman.—p. 807.
- Clinical Interpretation of Insulin Induced Ketonuria. N. W. Drey.—p. 811.
- *Picrotoxin in Barbiturate Poisoning. D. L. Burdick and E. A. Rovenstine.—p. 819.
- Demonstration of Visceral Pain by Determination of Skin Potentials. L. M. Morrison and E. A. Spiegel.—p. 827.
- Hypervitaminemia A in Recovery Stage of Various Diseases. F. Steigmann, K. A. Meyer and H. Popper.—p. 832.
- Prothrombin Response to Large Doses of Synthetic Vitamin K in Liver Disease. S. Shapiro and R. K. Richards.—p. 841.
- Liver Dysfunction Hyperglycemia: Its Etiology and Relation to Diabetes Mellitus. S. J. Taub, W. H. Shlaes and L. Rice.—p. 852.

Picrotoxin in Barbiturate Poisoning.—Burdick and Rovenstine maintain that from the point of view of safety and sustained effectiveness picrotoxin is preferable to other analeptics in the treatment of barbiturate poisoning. Mortality rates of over 7 per cent have been reported in attempted suicides with barbiturates. Prolonged hypoxia, intercurrent pulmonary infection, pulmonary edema, cerebral edema, nutritional deficiencies, depressed kidney function, decubitus ulcers and transient or

more permanent neurologic sequelae are frequent accompaniments of prolonged barbiturate narcosis and should be avoided if possible. The authors think that to those familiar with its action and the method of administration there is no reason to withhold picrotoxin from patients for whom its use is indicated. It should be employed early and in adequate amounts supplemented by other, supportive measures. Four essentially similar cases are presented to illustrate the effects of neglected, inadequate, delayed and more immediate treatment. Early and adequate analeptic therapy with picrotoxin may prevent death, obviate a prolonged illness and result in a complete or more nearly complete recovery.

Annals of Otol., Rhin. and Laryngology, St. Louis

54:243-442 (June) 1945

- Disturbance of Function of Salivary Glands. A. C. Furstenberg and Elizabeth Crosby.—p. 243.
- Chronic Suppurative Otitis Media. L. R. Boies.—p. 265.
- Plasma Cell Tumors of Upper Part of Respiratory Tract. F. A. Figi, A. C. Broders and F. Z. Havens.—p. 283.
- Irrigation of Maxillary Sinus by Way of Middle Meatus. O. E. Van Alyea.—p. 298.
- Respiratory Function of Larynx: Some Observations on Laryngeal Innervation: Preliminary Report. J. A. Murtagh.—p. 307.
- Simple and Practical Procedure for Developing Esophageal Voice in Laryngectomized Patient. E. T. Gatewood.—p. 322.
- *New Treatment for Esophageal Obstruction Due to Meat Impaction. J. R. Richardson.—p. 328.
- Management of Chronic Middle Ear Suppuration with Fistula. M. Tamari and L. Hirsch.—p. 349.
- Prevention of Deafness in Children. R. M. Decker.—p. 358.
- Stenger Malingering Test Made with Audiometer. R. Fletcher.—p. 362.
- External Otitis in South Pacific. R. F. Nelson.—p. 367.
- Maxillary Sinusitis of Dental Origin and Management of Antral Fistula. R. J. McQuiston.—p. 373.
- Arterial Spasm and Fat Metabolism: Their Relation to Certain Diseases and to Certain Members of Vitamin B Complex. G. Selfridge.—p. 384.
- Further Observations on King Operation for Bilateral Abductor Paralysis. L. F. Morrison.—p. 390.
- Spasmodic Facial Neuralgia. R. L. Glass.—p. 409.
- Hemangioma of Ear: New Method for Control of Hemorrhage. O. J. Dixon.—p. 415.
- Clinical Observations on Palatine Tonsil in the Aged. G. Kelemen.—p. 421.

Esophageal Obstruction.—Richardson reports 17 cases of esophageal obstruction due to meat impaction. Only 2 adults and a 6 year old child had good teeth: each of these 3 had a strictured esophagus. Two other adults had teeth of their own, but 1 had many teeth missing and the other had broken teeth and many infected roots. The remaining 12 patients had no teeth of their own. The upper plate was blamed by them as the cause of their mishap. The upper artificial denture takes away the ability to feel food between the tongue and the hard palate. Consequently an overly large bolus of the food may pass back to the soft palate and be swallowed sooner than the victim intends. Six of the 17 persons had a normal esophagus. The other 11 had a narrowing or constriction of some portion of the esophagus. If the patient is young, nervous and without esophageal narrowing, morphine sometimes relaxes the normal esophagus sufficiently so that the foreign body slides down into the stomach. Spontaneous recovery can occur but is rare. Heretofore the esophagoscope has usually been employed for removal of the foreign body, particularly if the patient has waited several days before seeking help. Drew had successfully used caroid to dissolve impacted meat. Richardson used it or its chief constituent, papain. The proteolytic enzyme papain was orally ingested in a 5 per cent solution. Sixteen of these patients were promptly relieved of their obstruction. One patient, unable to retain the medicine, required operative removal of the foreign body. Operative removal of meat causing esophageal obstruction will seldom be necessary if the patient is given orally the proteolytic enzyme papain.

Bulletin New York Academy of Medicine, New York

21:337-390 (July) 1945

- Influenza: Methods of Study and Control. T. Francis Jr.—p. 337.
- Concepts of Immunology of Certain Virus Infections. P. K. Oltsky and J. Casals.—p. 356.
- Differences in Nature of Antibacterial Action of Sulfonamides and Penicillin and Their Relation to Therapy. C. M. MacLeod and E. J. R. Stone.—p. 375.

Delaware State Medical Journal, Wilmington

17:111-128 (June) 1945

- Thermal Burns. S. M. Rennie.—p. 111.
Total Gastrectomy. G. S. Serino.—p. 113.
Hydronephrosis in a Child. H. Wilson.—p. 118.

Georgia Medical Association Journal, Atlanta

34:87-106 (May) 1945

- Sarcoidosis: Incidental Finding in Postmortem Examination of 81 Year Old Woman Dying of Coronary Occlusion. C. Smith and H. C. Sauls.—p. 87.
Physical Therapy at Home for Peripheral Arterial Disease. C. J. McLoughlin.—p. 91.
Ruptured Uterine Myoma Simulating Ruptured Tubal Pregnancy with Hemorrhage. J. W. Filcher, D. M. Cornett and Gladys N. Coker.—p. 94.

34:107-128 (June) 1945

- Leather Bottle Stomach. F. K. Boland.—p. 107.
Diagnostic and Therapeutic Uses of Pituitary Extracts in Obstetrics. R. A. Bartholomew.—p. 110.
Tuberculosis: Whose the Burden? H. C. Schenck.—p. 113.
Relapsing Syphilis After Inadequate Penicillin Therapy. H. Hailey.—p. 116.

Journal of Clinical Investigation, Boston

24:251-404 (May) 1945

- *Treatment of Subacute Bacterial Endocarditis with Penicillin. A. L. Bloomfield, C. D. Armstrong and W. M. Kirby.—p. 251.
Anemia, Hypoproteïnemia and Cataracts in Swine Fed Casein Hydrolysate or Zein: Comparison with Pyridoxine Deficiency Anemia. G. E. Cartwright, M. M. Wintrobe, W. H. Buschke, R. H. Folliis Jr., A. Suksta and S. Humphreys.—p. 268.
Progressive Addisonian Pernicious Anemia Successfully Treated with Intravenous Choline Chloride. F. B. Moosnick, E. M. Schleicher and W. E. Peterson.—p. 278.
Conversion of Hematin to Bilirubin Following Intravenous Administration in Human Subjects. I. J. Pass, S. Schwartz and C. J. Watson.—p. 283.
Mechanism of Positive Cephalin-Cholesterol Flocculation Reaction in Hepatitis. D. B. Moore, P. S. Pierson, F. M. Hanger and D. H. Moore.—p. 292.
Significance of Cephalin-Cholesterol Flocculation Test in Malarial Fever. S. A. Guttman, H. R. Potter, F. M. Hanger, D. B. Moore, P. S. Pierson and D. H. Moore.—p. 296.
Comparative Studies of Chemical Changes Occurring in Sulfonamide Drugs During Therapy in Man. D. R. Gilligan, with the technical assistance of Edith M. Beck.—p. 301.
Factors Influencing Ascites in Patients with Cirrhosis of Liver. Elaine P. Rallii, J. S. Robson, D. Clarke and C. L. Hoagland.—p. 316.
Cardiac Output in Male Subjects as Measured by Technic of Right Atrial Catheterization: Normal Values with Observations on Effect of Anxiety and Tilting. E. A. Stead Jr., J. V. Warren, A. J. Merrill and E. S. Brannon.—p. 326.
Cardiac Output in Patients with Chronic Anemia as Measured by Technic of Right Atrial Catheterization. E. S. Brannon, A. J. Merrill, J. V. Warren and E. A. Stead Jr.—p. 332.
Effect of Venesection and Pooling of Blood in Extremities on Atrial Pressure and Cardiac Output in Normal Subjects, with Observations on Acute Circulatory Collapse in Three Instances. J. V. Warren, E. S. Brannon, E. A. Stead Jr. and A. J. Merrill.—p. 337.
Importance of Compensating Vasoconstriction in Unanesthetized Areas in Maintenance of Blood Pressure During Spinal Anesthesia. C. Neumann, A. D. Foster Jr. and E. A. Rovenstine.—p. 345.
*Relationship Between Concentration of Sulfamerazine in Body Fluids and Response in Treatment of Meningococcic Meningitis. J. G. Reinhold, H. F. Flippin, J. J. Zimmerman, W. I. Geffer and J. G. Riddler.—p. 352.
Complement Fixation in Human Malaria Using Antigen Prepared from Chicken Parasite Plasmodium Gallinaceum. S. W. Lippincott, H. H. Gordon, W. B. Hesselbrock and A. Marble.—p. 362.
Studies on Quantitative Evaluation of Certain Treatments in Healing of Experimental Third Degree Burns. C. M. Rhode, M. F. Morales and E. L. Lozner.—p. 372.
Effect of Amino Acids on Serum and Urine Creatine. C. M. Grossman.—p. 380.
Comparison of Diuretic Action of Sodium Dehydrocholate and Mercupurin in Man. W. Modell and H. Gold.—p. 384.
Renal Clearances of Substituted Hippuric Acid Derivatives and Other Aromatic Acids in Dog and Man. H. W. Smith, Norma Finkelstein, Lucy Aliminoso, Betty Crawford and Martha Graber.—p. 388.

Penicillin in Subacute Bacterial Endocarditis.—Bloomfield and his associates administered penicillin alone to 11 patients with subacute bacterial endocarditis. These patients had positive blood cultures; their strains of nonhemolytic streptococci were sensitive to penicillin in the test tube; their condition was not desperate and they agreed to stay in the hospital for from six to eight weeks. They were given from 200,000 to 500,000 units in twenty-four hours by continuous intravenous drip for three weeks and thereafter 120,000 to 200,000 units

per day in eight intramuscular injections (5,000 units per cubic centimeter of isotonic solution of sodium chloride) for three to five weeks. Most of the patients were treated for eight weeks without interruption. All patients were promptly made "bacteria free" except 1 who died early in the course of treatment. Eight were clinically cured of the infection after follow-up periods up to six months. One patient, apparently cured of the infection, died of cardiac failure. Cocci were seen in the depths of a scarred mitral valve. There were no clinical relapses or reinfections. Petechiae and emboli continued for some time after the blood cultures were negative. Renal lesions as evidenced by studies of urinary sediment were not as a rule completely eliminated by the treatment.

Sulfamerazine in Meningococcic Meningitis.—Reinhold and his associates evaluate the response of patients suffering from meningococcic meningitis to treatment with sulfamerazine, with particular reference to the concentration of this substance in body fluids. The comparative significance of drug concentrations in plasma, plasma ultrafiltrate and cerebrospinal fluid also has been examined together with the distribution of sulfamerazine between these fluids. The results of treatment of meningococcic meningitis with sulfamerazine were studied in 188 patients at the Philadelphia General Hospital. It was found that the concentration of sulfamerazine in cerebrospinal fluid is approximately 80 per cent of that of an ultrafiltrate of plasma and is closely dependent on the same factors governing the concentration of the drug in the ultrafiltrate, i. e. concentrations of drug and protein in plasma, and composition of the protein. In meningococcic meningitis higher concentrations of sulfamerazine in body fluids were associated with more rapid return of body temperatures to normal, more rapid disappearance of meningitic irritation and more rapid decrease in cerebrospinal fluid protein concentrations than were lower concentrations. For each milligram of increase in plasma sulfamerazine concentration the average response was shortened by one day. The results suggest that the dosage in common use is suboptimal and that further trials with therapeutic concentrations in blood serum above 20 mg. per hundred cubic centimeters are needed. Determinations of concentrations of sulfamerazine in cerebrospinal fluid or plasma ultrafiltrates offer no advantage in evaluation of therapeutic response in meningococcic meningitis over such determinations in plasma. Certain toxic manifestations (drug fever) of sulfamerazine appear to be more frequent at higher concentrations of drug in plasma. Others (rash, hematuria) showed no such relationship. The incidence of toxic manifestations increased appreciably after one week of treatment, reaching a maximum about ten days after treatment was started.

Kentucky Medical Journal, Bowling Green

43:151-170 (June) 1945

- Arthritis, a Challenge to the Profession. G. S. Butteroff.—p. 153.
Some New Biologic Preparations. D. M. Griswold.—p. 156.
Rupture of Uterus: Report of Case. H. H. Caffee.—p. 158.
Errors in Diagnosis of Acute Appendicitis. G. Y. Graves.—p. 159.
Am I Sick or Just Discarded? A. M. Lyon.—p. 163.
Preventing Postlumbal Puncture Headache. A. C. McCarty.—p. 165.

43:171-196 (July) 1945

- Cardiovascular Diseases. W. D. Stroud.—p. 174.
Undulant Fever: Medical and Epidemiologic Aspects. C. G. Baker.—p. 179.
Congestive Heart Failure. B. H. Hollis.—p. 183.
Psychosomatic Medicine. H. M. Janney.—p. 185.

Missouri State Medical Assn. Journal, St. Louis

42:319-388 (June) 1945

- For Acquired Hemolytic Icterus Nontraumatic Emergency Splenectomy. B. W. Klippel and G. O. Brown.—p. 333.
Amyloid Disease of Kidney. L. J. Wade, K. R. Schlademman and F. U. Steinberg.—p. 335.
Missouri Medicine Aims Rehabilitation of Indigent Physically Impaired. T. W. Parry.—p. 348.
Medical Producers' Cooperative. S. W. Insley.—p. 352.

42:389-458 (July) 1945

- Clinical Experiences with Thiouracil. R. O. Muether, W. C. MacDonald, L. Goldberg and J. T. Van Druggen.—p. 405.
Relapsing Febrile Nodular Nonsuppurative Panniculitis, with Report of Case. G. Ives.—p. 409.
High Frequency Currents in Surgery. C. H. Shutt.—p. 410.

New England Journal of Medicine, Boston

232:719-746 (June 21) 1945

Terminal Care in Cancer: Study of 200 Patients Attending Boston Clinics. Ruth Abrams, Gertrude Jameson, Mary Pochlman and Sylvia Snyder.—p. 719.

Care of Patient. E. E. Kattwinkel.—p. 724.

Skin Tests in Bacterial and Viral Diseases. L. W. Kane.—p. 728.

Quartan Malaria. W. Dameshek.—p. 735.

Acute Bacterial Endocarditis, Posterior Aspect of Mitral Valve, with Perforation into Right Auricle (Type 13 Pneumococcus). R. Harwood.—p. 739.

232:747-776 (June 28) 1945

*Treatment of Pneumococcal Pneumonia with Penicillin. M. Meads, H. W. Harris and M. Finland with technical assistance of Clare Wilcox.—p. 747.

*Listerellosis. M. M. Kaplan.—p. 755.

Skin Tests in Bacterial and Viral Diseases. L. W. Kane.—p. 760.

Hygroma Colli Cysticum. N. B. Talbot.—p. 766.

Bleeding Peptic Ulcer: Coronary Thrombosis, Recent and Old. D. Hurwitz.—p. 769.

Penicillin in Pneumococcal Pneumonia.—Meads and his associates report the results of treatment with penicillin in a series of 54 cases of pneumococcal pneumonia. Penicillin was used alone in 37 of these cases, whereas in the remaining 17 cases it was given only after sulfonamide drugs had either failed to bring about a satisfactory response or produced untoward effects. Intermittent intramuscular administration of penicillin was the most feasible method and was generally used. Most of the patients with moderately severe symptoms were given from two to six injections of 15,000 units every two hours, and then the same amount was given every three hours until there was clinical improvement and the temperature had remained below 100 F. for twelve hours. Additional doses of 10,000 units each were then given every three hours for another two or three days. In the severe cases the same general scheme of dosage was used except that a single dose of 5,000 or 10,000 units was given intravenously in some cases at the time of the first intramuscular injection and from six to twelve injections of 15,000 units were given at two hour intervals. The average total dose varied between 317,000 and 735,000 units. Bacteremia cleared rapidly. Fever and acute symptoms subsided in most cases within twenty-four to forty-eight hours. Subjective improvement often preceded the drop in temperature. There were ten deaths. Seven of these were of patients who were moribund at the time treatment was begun; the other three deaths were associated with severe complicating conditions. Purulent complications did not develop following penicillin therapy. Penicillin was equally effective in cases in which it was used alone and in those which had previously failed to respond to sulfonamides.

Listerellosis.—According to Kaplan listerellosis is a sporadic, infectious disease occurring naturally in man and in animals, including cattle, sheep, goats, swine, foxes, chickens, rabbits, guinea pigs, gerbils and rats. The causative organism, *Listerella monocytogenes*, was first submitted as a new species (*Bacterium monocytogenes*) in 1924 by Murray, Webb and Swann, who isolated it from an epizootic affecting their laboratory rabbits and guinea pigs. In 1929 Nyfeldt recovered the organism from the blood stream of a youth aged 17 with infectious mononucleosis. It is highly probable that the diphtheroid organisms isolated from cases of meningitis in 1915 by Atkinson and in 1919 by Dick were *Listerella*. There have been reported in the literature 23 definitely diagnosed and 13 probable cases of human listerellosis. In its typical meningeal form the disease had a mortality of approximately 79 per cent. The natural habitat and port of entry of *Listerella monocytogenes*—other than transplacental infection in the newborn—are unknown. The nasal and gastrointestinal tracts appear as the likeliest routes of penetration. The facts that infection of the newborn can occur with no effect on the parent, that a *Listerella* bacteremia may be present in cases of infectious mononucleosis and that certain predisposing factors apparently produce active infection suggest that latent carriers play a significant role in the pathogenesis of listerellosis. At present there is little evidence to incriminate animals as direct transmitting agents of *Listerella monocytogenes* to human beings. The widespread prevalence of listerellosis in animals establishes them as possible reservoirs of infection for man. It is believed that the organism acts as a contingent invader in infectious mononucleo-

sis rather than as an incitant of the disease. Circumstantial evidence is cited supporting the possibility of interhuman communicability in active cases of listerellosis, thus making advisable the practice of communicable disease precautions whenever this disease is encountered. Clinically and at necropsy listerellosis is characterized by a meningoencephalitic syndrome. The most usual spinal fluid changes were increased pressure, globulin and leukocytes. A moderate neurocytosis occurred early in the disease. Treatment with sulfonamides appears to have been successful.

New Orleans Medical and Surgical Journal

97:521-570 (June) 1945

Special Aspects of Prenatal Care. W. E. Levy.—p. 521.

Ovarian Arrhenoblastoma. C. G. Johnson.—p. 526.

Diagnosis and Treatment of Some Common Medical Emergencies. M. Saunders.—p. 531.

Pennsylvania Medical Journal, Harrisburg

48:881-1008 (June) 1945

Use and Practical Application of Rh Test. L. F. Ritmiller, J. E. Gleichert and R. E. Nicodemus.—p. 897.

Significance of Psychosomatic Medicine. E. E. Mayer.—p. 900.

Fourteen Years of Obstetrics at Community Hospital. C. A. Behney, J. L. Richards and J. Y. Howson.—p. 906.

Report of Second Statewide Survey of Acute Appendicitis Mortality. J. O. Bower.—p. 911.

Renal Colic. J. F. McCahey.—p. 937.

Tennessee State Medical Assn. Journal, Nashville

38:203-238 (July) 1945

Diagnosis of Extrauterine Pregnancy. L. E. Burch.—p. 203.

*Landry's Paralysis Following Antirabies Vaccine, with Suggestions as to Treatment. C. R. Thomas.—p. 209.

Sinusitis as Cause of Chronic Cough in Children. J. R. Bowman.—p. 215.

Landry's Paralysis Following Antirabies Vaccine.—Simple abrasions and scratches should be cleansed with soap and water, iodine and alcohol or with mercury bichloride. Cauterization is ineffective unless used within an hour after injury, and then it destroys only the virus remaining on the surface. The use of the cautery does not lessen the mortality but is thought to prolong the incubation period and for this reason is considered to be of value. Pure phenol destroys virus rapidly. Vaccine should be given following a bite if the animal dies or develops rabies within ten days; also if it disappears or is a stray. Because of the extremely short period of incubation in injury of the face, lips, head and hands, and in deep multiple lacerations, it is advisable to give vaccine immediately and in large amounts. It has been estimated that about 3 in 10,000 patients receiving this treatment develop some sort of paralysis. The commonest form of paralysis, except the very mild ones, is one which resembles the ascending type described by Landry. The author observed this type of paralysis in a man who stated that after the second injection of rabies vaccine he felt "hot all over," but he had no other symptoms until after the last injection, when paralysis was rapidly progressing, so that within three days he was unable to move his hands or feet, and in four days the arms and legs could not be moved nor could he raise his head. There was some muscle soreness in both upper and lower extremities but otherwise no sensory changes. He was admitted to the hospital. Hot compresses were applied and vitamins E and B₁ were given. From 100 to 300 mg. of thiamine was given daily, both the oral and intravenous routes being used. Wheat germ oil was given orally for the first three weeks. For about three weeks the case seemed hopeless. The patient began to be able to detect a little movement in the big toe on the right and then the muscles of his neck became stronger, then the muscles of his back, and after eight or nine weeks he was able to sit alone. He was given daily hydrotherapy treatment, massages and so on for about two months. His progress has been slow but steady. He can now walk without crutches and can hold light things in his hands. At present he is taking 30 mg. of thiamine daily and swimming three or four times a week. In the past month he has been able to take a light job. Perhaps he is one of a group who would have got well eventually, regardless of what was done, even though he was getting steadily worse until treatment was instituted.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

67:273-360 (Dec.) 1944

Denervation and Reinnervation of Human Voluntary Muscle. R. E. M. Bowden and E. Gutmann.—p. 273.

*Electrical Diagnosis of Peripheral Nerve Injury. A. E. Ritchie.—p. 314.

Disorders of Visual Space Perception Associated with Lesions of Right Cerebral Hemisphere. A. Paterson and O. L. Zangwill.—p. 331.

Electrical Diagnosis of Peripheral Nerve Injury.—

Ritchie describes measurements carried out in patients with nerve injuries. Four sets of measurements were recorded from each case. These were (1) the strength-duration relationship of threshold electrical stimuli (which include chronaxia figures), (2) the condenser capacities necessary for excitation in the technic of Cluzet (1905) and of Lewis Jones (1912), (3) the accommodation constants of the muscle during regeneration, as measured by progressive currents, and (4) the thresholds of excitability of the nerve-muscle complex to alternating currents of varying frequency. Characteristic quantitative differences are observed in the excitability of normal and of denervated muscle; during reinnervation intermediate values are detectable. Improvement of excitability appears a short time before the earliest sign of recovery detectable by purely clinical means, and this effect is of value in prognosis. The differences in absolute value of strength-duration figures obtained by different methods make the current-voltage relationships in living tissues of great importance in quantitative stimulation measurements; on account of the reactance of the tissues, stimuli of definite shape applied at the electrodes give rise to very different potential gradients across the actual excitable region.

British Journal of Radiology, London

18:167-198 (June) 1945

Familial Brachydactyly. J. F. Brailsford.—p. 167.

Resistance to Tumor Grafts Produced by Cell Free Tumor Extract. S. Russ and G. M. Scott.—p. 173.

Primarily Radiologic Lesions Found in Traumatic Chest Cases: II. Missile Tracks and Extrapleural Hematomata. J. C. Hodson.—p. 176.

Soft Tissue Calcification Secondary to Therapeutic Quinine Injection. J. S. Brown.—p. 183.

Development of Stereoscopic Photography and Radiography. L. P. Dudley.—p. 185.

Calcification and Ossification in Renal Carcinoma. A. K. Wilson and A. E. Connolly.—p. 193.

Self-Contained Electroscopie Charger. R. G. Mitchell.—p. 195.

Basal Cell Carcinoma of the Dorsum of the Hand: Report of Case. D. W. Smithers and W. D. Jenkins.—p. 197.

British Medical Journal, London

1:723-758 (May 26) 1945

Integration of Medicine. F. M. R. Walshe.—p. 723.

Difference Between Sexes in Dispersion of Intelligence. J. A. F. Roberts.—p. 727.

Observations on Ligature of Patent Ductus Arteriosus. J. B. Hunter.—p. 731.

Psychotic Battle Casualties. E. K. Mulinder.—p. 733.

Acute Intestinal Obstruction Due to Dried Fruit: Report of 2 Cases. A. Lyall.—p. 734.

Epidemic Outbreak in Europe. K. Stowman.—p. 742.

Edinburgh Medical Journal

52:145-192 (May) 1945

Recent Developments in Treatment of Pulmonary Tuberculosis. R. Y. Keers.—p. 145.

Further Experiments in Study of Immersion Foot. W. Blackwood and H. Russell.—p. 160.

*Low Blood Pressure. J. G. M. Hamilton.—p. 166.

Diagnosis and Description of Cancer. W. F. Harvey.—p. 181.

Low Blood Pressure.—Hamilton says that 90 mm. should be regarded as the lower limit of normal rather than the more commonly accepted figure of 110 mm. Systolic blood pressure in the range 90 to 110 mm. is frequently found in normal persons at all ages and is compatible with long life, good health and a high degree of physical efficiency. Adults possessing blood pressures in this range are unlikely to develop essential hypertension. Poor vasomotor control and systolic blood pressure of 90 to 110 mm. do not necessarily occur together. The

symptoms of persistent fatigue, dizziness and fainting attacks are not due to persistent hypotension, being frequently found in association with "normal" or elevated blood pressure. These symptoms are frequently due to psychoneurosis. He examined records of 53 patients whose predominant complaints were prolonged fatigue, lassitude, fainting turns, "blackouts," dyspnea and dyspepsia in explanation of which no organic lesion could be demonstrated and of which emotional disturbance was held to be the cause. Six had systolic blood pressures of 110 mm. or less; 13 had diastolic pressures of 70 mm. or less; 11 had diastolic pressures of 90 to 105 mm. With certain exceptions such as coronary thrombosis, paroxysmal tachycardia, cardiac tamponade and aortic stenosis, hypertension is not an expression of heart disease. Attempts to raise the blood pressure are usually unavailing and misguided as far as relieving the symptoms is concerned. When symptomatic benefit occurs, it is usually temporary. In view of the normal day to day fluctuations in blood pressure an increase of 5 to 10 mm. in the systolic pressure, sometimes hailed with joy as indicating successful therapy, cannot be regarded as of any significance. It is notable in psychoneurotic patients with blood pressure of 90 to 110 mm. that, at such times as the anxiety or other underlying emotional disturbance is less evident, not only are the general symptoms relieved but the blood pressure reading may be somewhat higher. Conversely, when the emotional disturbance again becomes prominent, the blood pressure may gradually fall to the lower levels. Postural or orthostatic hypotension is characterized by the occurrence of faintness or loss of consciousness on rising from the recumbent to the erect posture. Bradbury and Eggleston first described this disorder and gave details of 3 cases in which the blood pressures fell sharply from normal or elevated levels in the recumbent position to pressures of the order of 40 to 50 mm. systolic and 25 to 40 mm. diastolic in the erect position with loss of consciousness. It is usually considered that postural hypotension is due to a failure of splanchnic vasoconstriction to offset the gravitational effects of the assumption of the erect posture.

Lancet, London

1:615-646 (May 19) 1945

Surgery of Persistent Ductus Arteriosus. T. H. Sellors.—p. 615.

Effects of Alcohol and Sodium Amytal on Intelligence Test Score. W. Sargent, P. Slater, H. Halstead and Margaret Glen.—p. 617.

Treatment of Battle Casualties: Two Stage Operation. R. W. Hendry, W. C. Gledhill and B. H. Price.—p. 618.

Treatment of Battle Casualties: Two Stage Operation. A. C. Turner, A. A. Murray and G. A. Fowler.—p. 621.

Treatment of Battle Casualties: Second Stage in Two Stage Operation. H. J. B. Atkins and B. Holden.—p. 622.

Compound Fracture of Femur: Two Stage Operation. R. J. B. McEwen, J. G. Bickerton and M. F. Pilcher.—p. 623.

Delayed and Secondary Suture of War Wounds. D. Rhatia.—p. 624.

Primary Closure of Battle Wounds of Face. R. Lawrie.—p. 625.

Conjunctival Hemorrhage After Bismuth Injection. L. Cohen.—p. 627.

1:647-678 (May 26) 1945

Typing of Staphylococci by Bacteriophage Method. G. S. Wilson and J. D. Atkinson.—p. 647.

Treatment of Acute Conjunctivitis and Trachoma with Sulfonamides. B. Miterstein and H. J. Stern.—p. 649.

*Penicillin by Inhalation. N. Mutch and R. E. Rewell.—p. 650.

*Bactericidal and Bacteriolytic Action of Penicillin on Staphylococcus. E. Chain and E. S. Duthie, with technical assistance of D. Callow.—p. 652.

Microscopic Effect of Penicillin on Spores and Vegetative Cells of Bacilli. A. D. Gardner.—p. 658.

Metal Anastomosis Tubes in Tendon Suture. G. K. McKee.—p. 659.

Spontaneous Pneumothorax and Staphylococcal Empyema in an Infant of 18 Days. Elizabeth Lund.—p. 661.

Penicillin by Inhalation.—In their experiments with the inhalation of penicillin Mutch and Rewell adopted the method of administration which had been standardized for sulfonamides. Mists were produced by a nebulizer actuated by oxygen pressure and delivered along wide streamlined conduits to a closely fitting nose piece detached from an oxygen unit. The subject was instructed to breathe out through the mouth, the lips serving as an outlet valve. The objective was to secure maximum deposition of mist on the respiratory mucous surfaces. Five healthy young men were selected for the survey. A preliminary trial was made in each case with the easily visible mist formed from 2 per cent glycerin in water and the rate of oxygen flow

was adjusted to the person's minimal requirements. The penicillin solution was then switched in to replace the glycerin for thirty minutes. Samples of blood and urine were collected and the penicillin contents estimated. The strength of the residual solution left in the nebulizer was also estimated to ascertain whether half an hour's intimate exposure to pure oxygen at a temperature a little above zero had caused undesirable destruction of the drug. The volume of solution nebulized varied from 2 to 4.1 cc. It was found that calcium penicillin administered as a mist is rapidly absorbed through the respiratory mucous membrane. Highly bacteriostatic titers can be established in the blood in this way. The wastage of materials involved is 60 to 75 per cent, but the high values obtained in blood and urine encourage the hope that weaker solutions than those employed in this preliminary assay—e. g., 5,000 units per cubic centimeter or even less—could be used economically and successfully for the local treatment of infections of the respiratory mucosa and immediately adjacent tissues, such as purulent bronchitis and bronchiectasis and as a prophylactic against secondary pyococcic infections in influenza.

Action of Penicillin on Staphylococci.—Chain and Duthie attempted to demonstrate the bactericidal action of penicillin manometrically by its effect on the oxygen uptake of growing staphylococcus cultures. The manometric measurements were complemented by photoelectric turbidity measurements, hemocytometer counts and viability counts. It was found that during the "resting" phase even larger concentrations of penicillin have no effect on the oxygen uptake. During the early lag phase and the logarithmic phase of multiplication penicillin exerts a strong inhibitory effect on and eventually completely stops the oxygen uptake of the suspensions in very small concentrations (0.04 to 0.1 unit per cubic centimeter). The effect is not immediate but sets in after an induction period. Hemocytometer and viability counts, run parallel with the measurement of oxygen uptake, show that penicillin has a strong bactericidal effect on staphylococcus suspensions in the early lag phase and the logarithmic phase of multiplication but no measurable bactericidal effect during the resting phase. The observation of Hobby, Meyer and Chaffee that penicillin kills bacteria in nutrient mediums but has no bactericidal action on resting bacteria has thus been fully confirmed. When penicillin is added to a suspension of 200 million staphylococci per cubic centimeter in a nutrient medium during the early lag phase the turbidity increases about twofold during the first hour of the incubation but the total number of organisms remains constant. The increase of turbidity under these conditions is attributed to swelling of the organisms. Penicillin is capable of exerting a bactericidal effect on the staphylococcus before actual cell division has occurred. On the other hand, staphylococcus suspensions can go through at least one division in the presence of penicillin when it is added during the logarithmic phase of multiplication. Penicillin appears to interfere with a metabolic function in the early stages of bacterial development. Helvolic acid, the bacteriostatic antibiotic, antagonizes the bacteriostatic and bacteriolytic effects of penicillin on the staphylococcus. Sulfanilamide and sulfamezathine, which do not prevent the occurrence of at least several cell divisions, have no antagonistic action on the bactericidal effect of penicillin on the staphylococcus (and the streptococcus) but have, on the contrary, a synergistic effect. This effect is strong with naturally occurring penicillin resistant strains of staphylococci.

Medical Journal of Australia, Sydney

1:449-472 (May 5) 1945

Milk and Public Health. A. R. Southwood.—p. 454.
High Nutritive Value of Skim Milk. R. C. Hutchinson.—p. 457.

1:473-504 (May 12) 1945

*Rat Leprosy: Observations and Transmission. J. W. Fielding.—p. 473.
*Infiltration with "Monacrin" (5-Aminoacridine Hydrochloride) as Alternative to Excision in Treatment of Contaminated Wounds. F. Arden.—p. 486.

*Rat Leprosy.—According to Fielding the geographic distribution of leprosy in rodent species is spreading. In New South Wales it has been detected in 2 specimens of *Mus musculus* and in 3 of *Rattus norvegicus*. The distribution of the

leprosy organisms in the body of infested animals is found to be the more generalized the more thorough the search. The author noted involvement of the stomach, pylorus, duodenum, sternum, pericardium, brain and bulbourethral and preputial glands. The lepra cells associated with the superficial lesions of the rat are considered to arise from the polymorphonuclear leukocytes, the nuclear structure of which is particularly or completely destroyed as the invading organisms increase in number. The virulence is much greater in the organisms from feces, urine and primary ulcers than in those from granulomas and old ulcers. It is suggested that by the passage of organisms from granulomas and old ulcers through guinea pigs and rabbits the virulence may be considerably built up. By superinfection at regular intervals with the virulent type of organisms, resistance may be broken down; however, superinfection with less virulent organisms tends to build up an immunity which eventually may destroy all signs of infection. Primary lesions of a temporary character are produced by subcutaneous injection of emulsions containing rat leprosy organisms. Lesions of a permanent character and primary in origin may be produced by repeated inunction with virulent organisms. Glandular infection is an early manifestation of the disease and may result from a single invasion of the organism through the skin. The musculocutaneous disease is a product of superinfection with more virulent organisms, producing lesions and intracellular organisms which are permanent features resulting in generalized infections. Even after organisms have been dry for twelve to eighteen months in the feces, infection may still be produced. Infection of rats has been effected by hookworm larvae, by feeding the lice and by inoculation and inunction of emulsions of ectoparasites. From the experience described, the early appearance of typical clinical lesions and the intracellularity of the organisms appear to settle the question of specificity of the acid fast organisms for leprosy.

Study of Infiltration with 5-Aminoacridine Hydrochloride Instead of Excision.—Arden studied accident cases at the Brisbane Children's Hospital to determine the efficacy of infiltration with 5-aminoacridine hydrochloride in preventing infection in contaminated wounds. After the patient was anesthetized, gauze swabs soaked in a 1:1,000 solution of 5-aminoacridine hydrochloride (in 0.45 per cent solution of sodium chloride) were placed in the wound while the surrounding skin was cleansed with a solution of zephiran concentrate. The wound was cleansed with the aforementioned gauze swabs. Fragments of tissue that had become separated from their blood supply were detached, but tissue which was merely bruised or lacerated was not removed and no general excision was undertaken. The margins and floor of the wound were then carefully infiltrated with the 1:1,000 solution of 5-aminoacridine hydrochloride. This preparation is a powerful bacteriostatic agent capable of inhibiting the growth of a wide variety of pathogenic organisms. A series of injections was made beneath the skin around the perimeter of the wound, about 1 centimeter apart. The subcutaneous tissues, muscles and other structures were then infiltrated in turn. In cases of compound fractures, solution was injected between the fractured ends. The wound was then closed in layers. The amount of solution varied between 1 and 30 cc. in the reported series of 16 cases. One pyocyanus infection developed; in 3 cases some aseptic necrosis of the skin resulted from the nature of the accident. The remaining 11 healed by first intention.

Annales de Dermatologie et de Syphiligraphie, Paris

5:1-56 (Jan.-Feb.) 1945

*Hereditary Polyfibromatosis. A. Touraine and H. Ruel.—p. 1.
Criteria and Frontiers of Schumann's Disease. M. F. Coste.—p. 6.
Visceral Manifestations of Herpes Zoster. R. B. Duperrat.—p. 18.
Bioelectric Phenomena of Skin. A. Denier.—p. 23.
Blastomycosis of Gilchrist. J. Watrin, P. Jeandidier, J. Michon and Seyot.—p. 26.

Hereditary Polyfibromatosis.—Touraine and Ruel apply the term hereditary polyfibromatosis to a hereditary constitutional condition in which the patients have a tendency to form nodular fibrous infiltrations, often multiple, in various parts of the body. This concept is not new, since Janssen in 1902

grouped under the term "fibroplastic diathesis" Dupuytren's contracture, induration of the corpora cavernosa, keloids, gout and arthritis deformans. Numerous more recent observations permit the enlargement of this picture and the incorporation in it of a long series of connective tissue hyperplasias and also the introduction of the role of heredity. The clinical characteristics of polyfibromatosis are the slow, progressive, insidious development, without apparent cause, of painless nodules of firm and hard consistency. Anatomically, polyfibromatosis is a fibrous hyperplasia of the connective tissue in the form of nodules, without enveloping capsule, formed of bundles of thick collagenic fibers. There may be local calcium deposits in the fibroid tissue. While the pathogenesis remains obscure, it seems that the process is one of progressive involution of the connective tissue toward sclerosis in the more general framework of abiostrophy. The genetic characteristics are those of simple, dominant heredity, with slight predominance for the male sex. The authors point out that polyfibromatosis is a new example of "polyphenic" heredity; that is, there are "ensembles" of fibrous hyperplasias the elements of which are transmitted either in identical sites, in different sites or in groupings. After classifying the fibromatoses into the peripheral, skeletal, visceral, vascular and metabolic forms, the authors discuss the grouping of the fibromatous conditions. They found 140 cases of such groupings. Dupuytren's contracture is often associated with the simultaneous retraction of the plantar and palmar aponeuroses or with induration of the corpora cavernosa. The association of the latter condition with Dupuytren's disease was found 30 times in the 140 cases. Aside from its combination with Dupuytren's contracture, induration of the corpora cavernosa has been found associated with keloids, fibromas of the fingers, osteopoikilosis, hypercalcemia and the like. Numerous other groupings of fibromatous conditions are cited.

Gynécologie et Obstétrique, Paris

44:125-184 (No. 7) 1944

Interventions Required in Delivery of Twins. L. Portes and Granjon.—p. 133.

Uterine Chronaximetry. P. Chauchard.—p. 145.

*Passage of Antisiphilic Drugs Through Placenta. A. Patoir, H. Bédine, Poiteau and Biserte.—p. 153.

First Results of Treatment of Metritis of Uterine Body by Intravaginal Injection of Paste of Fontamide (Aminobenzene Sulfamidothiurea). J. Boudreaux and J. Savouret.—p. 158.

Plastic Operation of Ureter or Implantation. B. S. Ten Berge.—p. 162.

Placental Transmission of Antisiphilic Drugs.—Patoir and his co-workers found that bismuth and arsenic pass the placental barrier simultaneously. They conclude from this that it is artificial to differentiate a preconceptional and a post-conceptional antisiphilic drug. Bismuth and arsenic pass the chorionic membrane under the same conditions; in giving one or the other or both, a good impregnation is secured and the embryo is protected as much as possible.

Arch. d. Hosp. de Niños R. del Río, Santiago

12:123-211 (Dec.) 1944. Partial Index

Pulmonary Tuberculosis in School Children. M. Neira Salgado.—p. 123.

*Vaginal Smears of Newborn Infants. A. Guzmán and J. P. Franco.—p. 159.

Vaginal Smears of Newborn Infants.—Guzmán and Franco observed in 200 vaginal smears of newborn infants and in cadavers of newborn infants that the cytology of the vaginal mucosa resembles that of adult normal women in the premenstrual days. The smears show cells of the superficial and intermediate layers of the epithelium in a proportion of 20 of the former for each 5 of the latter. Cells of the deep layer of the epithelium, leukocytes and Döderlein bacilli do not appear in the smears for the first two weeks of life. The number of cells of the superficial layer of the epithelium progressively diminishes during the first week of life. The cells disappear after the twelfth day. A hyperestrogenic vaginal smear of the type of a pregnant woman was seen by the authors only in the vaginal smears of the cadaver of an infant with erythroblastosis fetalis. Smears of infants show atrophy of the vaginal epithelium from the second week of life up to puberty. When

vaginal smears of little girls and adolescents are of the type of normal adult women, they suggest either a hormonal pathologic condition or the effect of the administration of estrogens, as is the case when girls are given estrogenic substance for gonorrheal vulvovaginitis.

Revista Chilena de Pediatría, Santiago

16:177-256 (March) 1945. Partial Index

Poliomyelitis in Quito: First Epidemic Outbreak. C. Andrade Marin.—p. 177.

*Rat Bite Fever: Case. E. Cienfuegos and R. Montero S.—p. 186.

Rat Bite Fever.—Cienfuegos and Montero S. report that a normal infant at the age of 1 month was bitten by a black rat. The wound bled profusely. Iodine was applied to the wound three hours later. The infant showed symptoms of an acute infection, rigidity of the neck and profuse sweating eighteen hours later. The symptoms which followed were typical of Haverhill fever (epidemic erythema arthriticum). Streptococcus moniliformis was identified from the pus of an abscess which developed in the course of the disease. Sulfathiazole was ineffective. Repeated blood transfusions, vitamins and acetarsone (paroxil) in doses of 0.03 Gm. for each kilogram of body weight constituted the treatment. X-ray examinations of the limbs showed acute osteochondritis and periostitis, which are presumably responsible for the arthritic symptoms and which parallel the course of the fever. Complete recalcification of the epiphyses of the bones gradually takes place after subsidence of fever.

Semana Médica, Buenos Aires

52:791-829 (May 10) 1945. Partial Index

*Pernicious Anemia in Senile Age. C. R. Agustoni and A. L. Sansusti.—p. 799.

Penicillin in Gonorrhea: Cases in Santiago del Estero. L. G. Cortigiani.—p. 802.

Pernicious Anemia in the Aged.—Agustoni and Sansusti direct attention to the importance of pernicious anemia in the aged for the diagnosis and early therapy. The subjects of the authors' report were 3 women between the ages of 82 and 87 years. The early symptoms in all were the appearance of moderate pallor, lack of appetite, gastrointestinal disorders, acute edema about the ankles, depression or delirium. The hemogram was typical of pernicious anemia in all cases. The therapy consisted of liver extract in large doses and of hydrochloric acid. All patients recovered. The mental disorders were permanently controlled.

Acta Chirurgica Scandinavica, Stockholm

90:275-382 (Oct.) 1944. Partial Index

Surgical Care for Gunshot Wounds of Brain. W. Tönnis.—p. 275.

Operative Therapy and Prognosis in Fracture of Patella. E. Moberg.—p. 295.

*"Bone Chip" Grafts in Defects in Long Bones: Study on Transplantation of Bone Chips from Compact and Spongy Substance in Defects in Long Bones and Role of Periosteum and Endosteum in Bone Grafts from Compact Substance. A. Hellstadius.—p. 317.

*Surgical Treatment of Acute Hepatitis (So-Called Catarrhal Icterus). E. Bergenfeldt.—p. 329.

Pylonephritis Xanthomatosa. S. Osterlind.—p. 369.

Surgical Treatment of Acute Hepatitis.—Bergenfeldt describes 4 cases of acute hepatitis in which jaundice had persisted for seven months, two months, six weeks and five weeks respectively. Jaundice disappeared and the patients recovered rapidly after operation, which consisted in perfusion of the biliary passages with contrast medium and in 1 case with isotonic solution of sodium chloride as well. Bergenfeldt thinks that operation is indicated for patients with uncertain diagnosis, in whom biliary obstruction cannot be ruled out and for patients with hepatitis and severe icterus which does not diminish within a reasonable time and when there is danger of acute yellow atrophy and cirrhosis of the liver. Active surgical therapy can save a number of these patients. Perfusion of the biliary passages in the form of cholangiography should be tried first, because this must be done anyway to confirm the diagnosis. If this does not have the desired effect, a fistula can be made into the gallbladder.

Book Notices

Mass Radiography of the Chest. By Herman E. Hilleboe, M.D., Medical Director, Chief, Tuberculosis Control Division, United States Public Health Service, and Russell H. Morgan, M.D., Surgeon (R), Medical Officer-in-Charge, Radiology Section, Tuberculosis Control Division, United States Public Health Service. Cloth. Price, \$3.50. Pp. 288, with 93 illustrations. Chicago: Year Book Publishers, Inc., 1945.

Several books have been published on mass radiography in other nations, such as "Mass Miniature Radiography" by Trail and others, published by J. and A. Churchill Ltd., London, 1943, and "Mass Miniature Radiography of Civilians" by Clark and others, published by His Majesty's Stationery Office, London, 1945. However, this is the first book to be published on the subject in the United States. It is indeed fortunate that this first volume was written by physicians who have had wide experience in tuberculosis work and in the fundamentals of radiography, since at this particular time the value of the x-rays in the diagnosis of tuberculosis is greatly exaggerated, even to the point of making final diagnoses with no evidence whatever except shadows seen on x-ray films.

The limitations of the x-rays are numerous in the diagnosis of chest diseases. Therefore the public and even the medical profession could have been led far astray had such a book been prepared by authors not well grounded in all phases of diseases of the chest and the fundamentals of x-rays. The great importance of the inclusion of x-ray inspection as a part of every examination of the chest has been emphasized in several quarters since the first world war. However, students of chest diseases have not recommended that any examination of the chest be limited to x-ray inspection or that any examination for tuberculosis be limited to the chest. Therefore Hilleboe and Morgan have not confined their book to x-ray inspection, as one might infer from its title.

Although the bulk of the book is devoted to such subjects as history of mass radiography, equipment available for mass radiography, phototimers and automatic cameras, physical factors affecting the choice of equipment, designs for mass radiographic installations, roentgen technic in mass radiography and the future development of mass radiography, there are excellent chapters on such subjects as objectives of tuberculosis control and the study and care of persons with abnormal films.

In a chapter on diagnosis the authors state that x-ray inspections constitute diagnostic screening procedures by which the abnormal are separated from the normal. Obviously this applies only when macroscopic (pathologically gross) lesions are present and are of sufficient density to absorb x-rays. Lesions of smaller size and less density cast no visible shadows. The authors point out that in many cases it is quite impossible to identify the various diseases of the chest which cast shadows. They rightly state that this should not be cause for concern, for "if an x-ray examination does nothing more than indicate the presence of a pathological process it has made a worth while contribution, especially if the process is unsuspected." If every physician would recognize this fact and so use the x-rays, this phase of the examination would serve a much more useful purpose than has been true in many instances in the past. The authors call attention to the fact that, once the presence of disease is detected by the shadow it casts, its etiology usually can be determined by other methods.

A fine array, in fact more than forty x-ray reproductions, is presented. In some of them diagnostic impressions are given without much other evidence than the shadows, but in the majority the actual diagnosis is given when other more exact evidence was available, such as recovery of specific organisms, a study of biopsy material, history of exposure to hazardous dust, presence of tuberculin reaction and postmortem examination. These reproductions of shadows, together with other diagnostic evidence presented, is an excellent demonstration of the proper use of the x-rays.

When a lesion has been definitely identified as tuberculous, all too often one sees reports made from one film of the chest, including such words as active, quiescent, arrested, healed, stable, unstable, first infection type and reinfection type. With reference to determination of activity of a given lesion from the shadow it casts, the authors rightly state, "Notwithstanding

the fact that there was a time when we sincerely believed that this question could be answered from the appearance of a single film alone, recent experience indicates that it is extremely difficult in most instances to do so. Before a process can be considered definitely active, progressive changes in subsequent roentgenograms or positive laboratory and clinical findings, such as a tuberculin reaction, tubercle bacilli in the sputum, or gastric washings, and increased sedimentation rate and fever, should be demonstrated." The correctness of this statement is obvious to all students of tuberculosis.

As long as the limitations of mass radiography employing photofluorograms as well as regular size x-ray films is explained and understood by all concerned, it is highly desirable to use the x-rays in screening the chests of any group of individuals, no matter how small or how large. Indeed, it should be extended to every citizen, as it detects the presence of gross lesions in the lungs, mediastinum and pleura, regardless of etiology, as well as changes in the cardiac outline, among persons in whom they are not suspected.

Four principal phases of an effective tuberculosis control program are discussed: (1) case finding, (2) medical care and isolation, (3) after-care and rehabilitation, (4) protection of the tuberculous family against economic distress. These four fundamental procedures are presented in such a manner as to convince the reader that Hilleboe and Morgan have a clear vision of satisfactory tuberculosis control throughout the country. This undertaking deserves the support of the entire medical profession and all of its allies in developing and carrying out a nationwide tuberculosis control program which ultimately could prove to be as successful as that which the veterinarians instituted and conducted against tuberculosis among cattle.

Tropical Medicine. By Sir Leonard Rogers, K.C.S.I., C.I.E., M.D., and Sir John W. D. Megaw, K.C.I.E., B.A., M.B. Fifth edition. Cloth. Price, \$6.50. Pp. 518, with 89 illustrations. Baltimore: William Wood & Company, 1944.

The authors of this compact manual of tropical medicine are unusually well qualified not only by many years' duty with the Indian Medical Service but also by virtue of considerable experience as teachers and advisers in their specialty. Each contributed basic original studies and each rose to positions of major administrative responsibilities in India. It is not surprising that five editions of their book have appeared since it was published in England in 1930.

This work was planned to emphasize the recognition and management of the diseases commonly encountered in tropical and subtropical countries, with a minimum of discussion of laboratory and parasitic phases. The book gives a broad survey and is an introductory treatment of the subject.

The twelve sections cover respectively the fevers caused by protozoa, spirochetes, filtrable viruses, rickettsia bodies and bacteria; bowel diseases; diseases with prominent skin lesions; helminth diseases; diseases caused by venomous animals, diet, heat and light, and finally a miscellaneous section which includes a discussion of disease incidence in the tropics, hints on use of the microscope and some general remarks on the diagnosis of fevers. This fifth edition presents considerable revision in the chapters on malaria, kala-azar, trypanosomiasis, rickettsial diseases and those associated with diet.

As in previous editions, preventive aspects of the subject receive considerably less attention than clinical. Inevitably there must be a considerable interval between manuscript and published book, and this doubtless explains such important omissions as a discussion of the large initial dose of atabrine in the first twenty-four hours, now generally considered standard when this drug is used in treating malaria.

The format is not up to usual standards, but the type is clear and the figures are useful. The illustrations are few and generally poor. The two colored plates are crowded and leave much to be desired. There is no bibliography.

This book does not take the place of such a classic as the Stitt-Strong treatise on Tropical Medicine, and it does not have the balance of the recent *Manual of Tropical Medicine* by Mackie, Hunter and Worth. But it contains a very useful presentation of the clinical aspects of the important tropical diseases, soundly based on the unusually extensive practical experience of the authors.

Your Hair and Its Care. By Oscar L. Levin, M.D., and Howard T. Behrman, M.D. Cloth. Price, \$2. Pp. 184, with 10 illustrations. New York: Emerson Books, Inc., 1945.

This "attempts to present in simple fashion the most recent scientific knowledge concerning hair, hair disease and the proper care of the normal scalp." Unfortunately, the authors have not fulfilled their assignment creditably. The first sentence in the book calls for challenge: "Few branches of medicine have made such progress in the past ten years as has the one concerning diseases of the hair and scalp." There are misleading inaccuracies throughout the book, as "Constipation is the root of a vast amount of baldness; a great deal can be done to prevent premature grayness; hair pins and hat pins are injurious to good hair growth; those who know that early baldness is a family trait should make particular efforts to prevent its coming; senile baldness should be guarded against before it appears." Writing expressly for the public, the authors have written simply, but with an inclination occasionally to facetiousness. The newer knowledge with regard to vitamins and endocrines is discussed briefly and adequately, yet on another page there is given the detailed technic for colonic irrigation. The last chapter, which consists of questions and answers, is particularly good, but the book as a whole hardly merits recommendation.

La dirección general de higiene de la Provincia de Buenos Aires. Por el Dr. Juan Leon, profesor adjunto de clínica obstétrica y docente libre de clínica ginecológica de la Facultad de ciencias médicas de Buenos Aires. Algo de la labor desarrollada especialmente en el terreno de la protección maternal e infantil. Paper. Pp. 203. Buenos Aires: "El Ateneo," 1944.

This book, published at his expense by the author, who is also assistant professor of obstetrics in the Buenos Aires Medical School, describes his experiences during the brief period (January-July 1944) when he acted as director of public health of Buenos Aires, the largest province of Argentina. A full account is given of the organization of the provincial health department and then more in detail the mother and child welfare activities carried out by the department since a special division was created at the author's suggestion for that purpose in the early part of 1944. The department controls fifteen hospitals in the province, a maternity with a school for midwives, five mother and child welfare stations, a nursery and other institutions. A number of other works were either under way or planned when the author left office. The budget of the department for the year 1944 was over 8,300,000 pesos, which represented a considerable increase over 1943.

Inebriety, Social Integration, and Marriage. By Selden D. Bacon, Ph.D. Memoirs of the Section on Alcohol Studies, Yale University, No. 2. Paper. Price, 75 cents. Pp. 76. New Haven, Connecticut: Quarterly Journal of Studies on Alcohol, 1945.

This reprint booklet attempts "to illustrate the possibilities of a sociological approach to a limited portion" of the problem of inebriety. It is a statistical paper supporting the personal conclusions of some workers in the field of alcoholism. While of some academic interest, it has no practical value for the practitioner.

What to Do About Vitamins. By Roger J. Williams. Cloth. Price, \$1. Pp. 56, with 31 illustrations. Norman, Oklahoma: University of Oklahoma Press, 1945.

A competent nutritional scientist has presented in this little book the important facts of nutrition in a simple manner. The material covers more than the title suggests. The effects of food intake on body weight, emotional attitudes and the results of improper eating are discussed. The primary objective, however, is to provide assistance in straightening out the existing confusion with regard to vitamins. The functions of vitamins are compared to the lubricants for machines. They are obtained from foods eaten, and most dependably from a variety of foods. The dangers of using too much of certain foods such as white rice, refined sugar and flour are appropriately pointed out. Advice is given for guarding against loss of vitamins in the cooking of foods that contain vitamins. Throughout the book the author's experience with the nutrition of growing animals is utilized to emphasize the effects of good and poor nutrition. Readers may anticipate advice on the selection and use of vitamin preparations, but this is not the case. Emphasis is placed

on foods as the proper source of nutrition, although the value of vitamin capsules under special conditions is not denied. To assist the reader in applying the principles discussed, diagrams are given providing visual comparison of the quality of foods. The simplicity of explanation and the multiplicity of examples make the book particularly valuable in orienting those confused or uninitiated in nutritional matters.

Tales from the Inns of Healing of Christian Medical Service in India, Burma and Ceylon. Prepared Under the Direction of the Executive Committee of the Christian Medical Association of India, Burma and Ceylon, P. V. Benjamin, President. Foreword by Rev. J. Z. Hodge, D.D. Canadian edition Paper. Price, \$1.25. Pp. 162, with illustrations. Toronto: The Committee on Missionary Education, The United Church of Canada; New York: Friendship Press, 1944.

A collection of unusual accounts from the mission hospitals in India, Burma and Ceylon that are operated by Christian Medical Service comprises the major portion of this small book. The struggles and difficulties of the pioneers in medical and hospital care are vividly retold in many anecdotes throughout the book. Modern scientific medicine, surgery and obstetrics was made available to a limited number of the lower classes in India through the mission hospital staffs. Much has been accomplished in establishing and furthering good schools of medicine and nursing for native Indians as a means of helping them solve some of their tremendous medical care problems. It is an interesting collection of reports of the valiant efforts of a few in their attempt to relieve the disease and distress of the forgotten man of India.

Contribución al estudio de los reduvidos hematofagos de Guatemala. Por Ernesto Blanco Salgado. Tesis presentada a la Facultad de ciencias médicas de la Universidad nacional, Guatemala, en el acto de su investidura de medico y cirujano. Publicaciones de la Dirección general de sanidad pública. Paper. Pp. 54, with 18 illustrations. Guatemala, C. A., 1943.

This booklet contains valuable information on the vectors of Chagas disease present in Guatemala and their morphology, distribution and habitats. It is to be noted that in spite of the varied and rich fauna of the country only two genera of Reduviidae are to be found, and each is represented by a single species, *Triatoma dimidiata* and *Rhodnius prolixus*, both proved carriers of American trypanosomiasis and both found naturally infected in Guatemala.

The Hair and Scalp: A Clinical Study (with a Chapter on Hirsuties). By Agnes Savill, M.A., M.D., F.R.C.P.I. Third edition. Cloth. Price, \$4.75. Pp. 304, with 54 illustrations. Baltimore: William Wood & Company, 1945.

This is an excellent book and is as up to date as a current medical journal. The subject is covered completely, from structure and physiology of the hair to discussions of endocrinology, hair dyes, permanent waves and hirsuties. Although Savill is strongly influenced by the teaching of Sabouraud, she gives the views of opposing schools, and the result is a clearly expressed personal book which includes frequent references to pertinent case reports. This volume contains twenty short chapters dealing with normal and diseased scalp and hairs, simply classified under such captions as "itching of the scalp," "gray hair," "diffuse hair fall," "hairfall with bald patches" and "scaly conditions of the scalp." Altogether it is an authoritative book, written with charming simplicity by a woman who has obviously studied the subject matter intensely and with sympathetic understanding, for "to women their [maladies of scalp and hair] may indeed color all life with tragedy." The book is highly recommended.

Índice bibliográfico de lepra 1500—1943. Volume I: A-H. Organizado por Luiza Keffer, biblioteca do Departamento de profilaxia da lepra de São Paulo. Paper. Pp. 674. São Paulo, 1944.

This index catalogue of works on leprosy is obviously the largest and most exhaustive reference list on any special medical subject so far published anywhere. Its publication constitutes a real service rendered by the Department for the Prevention of Leprosy of the State of São Paulo, Brazil, and especially its library, to a better knowledge of one of the diseases of most importance in some areas of the Americas. The mere list of journals embraces sixteen pages. The first volume covers only letters A to H. Leprologists and sanitarians, as well as bibliographers, will await with interest the appearance of the volumes reviewing the remaining letters of the alphabet.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BCG VACCINE FOR TUBERCULOSIS

To the Editor:—There have been numerous reports on the protective value of BCG vaccination against tuberculosis. Has this been used in this country? If so, where may one get the material and what is the technic?

A. I. Love, M.D., Chicago.

ANSWER.—There have been numerous reports on the protective value of BCG vaccination against tuberculosis. In fact, since 1922 more than two million children, as well as some adults, have been vaccinated. Most of this work has been done in Europe, Africa and Asia; it has been employed to a much smaller degree in the Western Hemisphere. Although considerable optimism has been expressed, there are many who definitely oppose the procedure because the vast majority of studies have not been well controlled. Levine has called attention to the fact that ideal control calls for consideration of the following variables:

1. Environmental conditions: (a) intelligence and cooperation of parents; (b) differences in locality; (c) differences in time during which controls of vaccinated patients are studied.

2. Exposure conditions: (a) frequency of exposure; (b) amount of sputum expectorated; (c) number of micro-organisms in the sputum; (d) intensity of exposure.

3. Other factors: (a) age at first exposure; (b) racial differences; (c) reliable diagnosis at death; (d) identical follow-up of control and vaccinated patients; (e) maintaining contacts with all cases; (f) freedom from exposure for similar periods in both groups if separation is advisable for either group; (g) study of adequate numbers of subjects to minimize results of chance distribution.

Levine points out that in no study thus far reported have all these factors been considered and adequately controlled. Therefore, until such a controlled study has been made and reported, the efficacy of BCG vaccination will not be definitely known. Milton I. Levine of the Department of Pediatrics, Cornell University Medical College, New York City, has recently prepared an excellent analysis of a study on the efficacy of the BCG vaccine conducted by the Bureau of Laboratories of the New York City Department of Health between December 1926 and January 1944.

Alberto Chattas of Cordoba, Argentina, has published an elaborate monograph on this subject. In Canada, J. A. Baudouin of Montreal and R. G. Ferguson of Saskatoon have conducted extensive experiments. J. D. Aronson of the Henry Phipps Institute, University of Pennsylvania, Philadelphia, and J. D. Townsend of the Office of Indian Affairs, Department of the Interior, Washington, D. C., have in progress a rather extensive study on the efficacy of BCG in controlling tuberculosis among American Indians. S. R. Rosenthal of Chicago has evinced considerable enthusiasm for the administration of BCG. An extensive and prolonged study of BCG in controlling tuberculosis among cattle of the United States has been reported. The results of this work may be obtained from A. E. Wight, Chief of the Division of Tuberculosis, United States Bureau of Animal Industry, Washington, D. C. The technic of administration and the source of material can be obtained from any of the physicians mentioned.

WELDING AND THE PARATHYROIDS

To the Editor:—A man aged 43 has chronic tetany. He has been doing electric arc welding. Could the rays have any effect on the parathyroids?

William A. Doebele, M.D., Huntingdon, Pa.

ANSWER.—One by one the various internal secretory organs are suspected of being a site of harmful action of arc welding products: first the testes, with emphasis on impotence, and then the ovaries, with emphasis on sterility. For none of these is there proof that the rays derived from arc welding have any harmful properties. Moreover, in tetany from involvement of the parathyroids ultraviolet rays, which are the rays produced in arc welding, have some value in therapy. Aub states that "by ultraviolet light calcium absorption from the intestines is improved, and calcium is also liberated from the bones. This effect is obtained only after several days. This treatment is of effect in all tetanics with low blood calcium." With emphasis value in all tetanics with low blood calcium." With emphasis on the probability of coincidence in the occurrence of tetany in

arc welding, two speculative possibilities may be mentioned. 1. In many types of electrical application, but not necessarily arc welding, large electrical fields are set up. It is possible, but little proved, that highly numerous minor electric fields may be set up within the body on an organ basis. Granting such a possibility, there still is lacking any knowledge of its physiologic import. 2. Arc welding may involve the use of many metals and chemicals, particularly if the welding is carried out with coated electrodes. Manganese, chromium, lead, fluorine and many others are in use; certain of these substances, such as lead and fluorine, upset the normal metabolism of calcium and phosphorus. Tetany is a condition characterized by the same sort of disturbed metabolism. In the *Lancet* (1:148 [Jan. 30] 1943) appears a note entitled "Fluorine and the Parathyroids." However, direct observation on small laboratory animals fed fluorine in toxic doses revealed no damage to the parathyroids, although some other organs were severely injured. In an article by K. Reinhart entitled "The Relation of Lead Poisoning and Parathyroid" (*Arch. f. Gewerbepath. u. Gewerbehyg.* 9:80, 1938) the findings imply that in chronic lead poisoning a condition may arise bearing some similarity to tetany.

General discussion of tetany and parathyroid diseases may be found in such publications as:

Meakins, Jonathan Campbell: *The Practice of Medicine*, St. Louis, C. V. Mosby Company, 1936.
Cecil, Russell L.: *A Textbook of Medicine*, Philadelphia and London, W. B. Saunders Company, 1937.

THE VAGINAL DOUCHE

To the Editor:—I am interested in the origin of the word douche and the earliest references from a purely hygienic point of view. There are many references regarding early intrauterine and vaginal douching during labor and the postpartum period, also as a therapeutic measure, but I am interested particularly in the mechanical aspect, as employed by the French, for instance, as a daily routine. Is it possible to furnish me with historical references concerning the douche from the standpoint I have outlined?

M.D., District of Columbia.

ANSWER.—The word douche is French and signifies a shower bath. However, in the English language the word is used to describe a stream of water directed against a part or into a cavity (*American Illustrated Medical Dictionary*). As generally used nowadays by both physicians and the public the word douche nearly always refers to a spray of water directed into the vagina either for purposes of cleansing or for therapeutic reasons.

Douches have been used for many centuries. Hippocrates, who died in 357 B. C., mentioned that vaginal irrigations were used extensively for vaginal and uterine diseases. Douches are used all over the world. The French have developed a special kind of douche which is used most extensively in France and is known as a bidet. This particular type of douche is used chiefly from a hygienic point of view and the apparatus for its use is really a sitz bath. Incidentally, the word bidet in French also means "pony" or "nag" and the woman usually sits on a bidet as one rides a horse. French women use the bidet both for external cleansing of the vulva and for vaginal douching. For many years the bidet has been the only plumbing equipment for bathing to be found in many bedrooms in France.

THROMBOANGIITIS OBLITERANS

To the Editor:—Is there any indication that heredity plays a part in the etiology of Buerger's disease? What is the usual cause?

Perry B. Preston, M.D., Newark, N. J.

ANSWER.—Buerger's disease may occur in members of the same family; brothers are sometimes affected. However, there have not been enough cases studied over two or more generations in family groups to permit any definite conclusions. The cause of the disease is unknown.

DOSAGE OF TESTOSTERONE

To the Editor:—With reference to the answer to the query on Dosage of Testosterone Propionate in *The Journal*, July 14, 1945, page 838, may I put in a word of dissent? In the past year I have given testosterone propionate in 25 mg. doses three times weekly for three weeks to 2 men aged over 65 years. The first patient died six weeks later of an enormous carcinoma of the stomach. X-rays of the stomach taken prior to institution of the androgen therapy were negative and still look so in retrospect. The second man died about a month after termination of therapy of a rapidly growing retroperitoneal sarcoma. Probably both neoplasms were present prior to institution of the therapy, but the rapidity of their growth and their apparent stimulation by the androgen simply appalled me, so much so that I have now made it a rule to give no such treatment to any man over 60.

Kenneth Goodman, M.D., East Orange, N. J.

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AN INTERPRETATION AND EVALUATION OF TUBAL PATENCY TESTS

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There are today two widely accepted methods of determining tubal patency, uterotubal insufflation and uterosalpingography. Rubin¹ first performed uterotubal insufflation in 1919, using oxygen gas. Salpingography began a few years earlier, when Cary² and Rubin³ in this country carried on independent studies in an attempt to visualize the tubes radiographically. Rindfleisch⁴ had previously attempted visualization of the uterine cavity in 1910. Since their inception almost a quarter century ago both tests have been discussed in the literature and there is no need to repeat their historical development here. Their widespread use and almost universal acceptance offer ample testimony to the fact that both have emerged from the chrysalis stage. Both have come to occupy an important place in the study of female sterility. Since equipment and steps in technic have also been thoroughly described, there is likewise little reason for their recapitulation here. On the other hand, a crystallization of important points gleaned from an extensive literature and a personal experience dating back to 1921, covering hundreds of tubal insufflations and over 400 cases of uterosalpingography may be appropriate in this symposium. Both uterosalpingography and uterotubal insufflation are commonly used for determination of tubal patency and for the two the contraindications are the same. While these have been listed many times they are so important that I shall repeat them here.

CONTRAINDICATIONS TO PERFORMING TUBAL PATENCY TESTS

The most important contraindication to the performance of a tubal patency test is the presence of genital tract infection. Most morbidity following tube testing results from failure to recognize or discover cervicitis or incompletely subsided salpingitis. Since careful and satisfactory evaluation of genital infection is not always possible at the time of the initial call, it is seldom wise to determine tubal patency at the time of the first visit. By deferring the test the physician not only obtains more time for the study of his patient but may also schedule the test at a selected time during the menstrual cycle.

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1. Rubin, I. C.: The Nonoperative Determination of Patency of Fallopian Tubes by Means of Intrauterine Inflation with Oxygen and the Production of an Artificial Pneumoperitoneum, *J. A. M. A.* 75: 661 (Sept. 4) 1920.

2. Cary, W. H.: *Am. J. Obst.* 69: 462, 1914.

3. Rubin, I. C.: *Surg., Gynec. & Obst.* 20: 435, 1915.

4. Rindfleisch, W.: *Berl. klin. Wchnschr.* 47: 780, 1910.

Pregnancy is an obvious contraindication. Knowledge of the patient's menstrual history and repeat pelvic examination just prior to tube testing is important.

When uterotubal insufflation is contemplated, air should not be used. While it has been employed extensively it must not be forgotten that most deaths reported following uterotubal insufflation were the result of air embolism.

Determination of tubal patency may be carried out at any time during the cycle, but most investigators prefer the week after menstruation. Time and experience have shown that if living endometrial cells are forced through the tubes they seldom survive, and furthermore perturbation appears to be more satisfactory when the endometrium is in a stage of minimal development and the tube quiescent. General constitutional disease and/or pelvic neoplasia associated with abnormal bleeding are other contraindications.

My interest in tubal insufflation began following Rubin's¹ original report on "The Nonoperative Determination of Patency of Fallopian Tubes" in 1920, at which time it was my privilege to be associated with Dr. Reuben Peterson, whose enthusiasm for pneumoperitoneum was well known. Significant improvements in apparatus such as the recording kymograph, introduced by Rubin in 1925 and modified by him in 1939, plus a variety of cannulas, represent the principal mechanical changes in the growth and development of uterotubal insufflation. As an aid in running down the causes of sterility in women the test remains indispensable. In the average nonfertile union, when the husband has been eliminated as a likely cause, an adequate history taken and such other preliminary studies as physical examination made, then uterotubal insufflation, under proper indications, becomes a logical and necessary procedure. According to reports approximately 60 per cent of women so studied present unequivocal evidence of tubal patency. About 30 per cent are found to have closed tubes.

Since the determination of tubal patency or nonpatency is the primary air of insufflation, the addition of a kymograph which permits recording of both gas pressure and tubal behavior may seem an unnecessary appurtenance. From a practical standpoint this addition has been more than compensated for by the minimum equipment and simplified apparatus also available for tube testing. Certainly, uterotubal insufflation may be accomplished without elaborate equipment. But, regardless of technic used, determination of tubal patency depends on evaluation of the following points:

1. Behavior of manometric pressure.
2. Careful evaluation of subjective symptoms such as pain in the lower quadrants (tube areas).
3. Auscultation (of the tubes) over the lower abdomen.
4. Checking for the presence of shoulder pain (subdiaphragmatic pneumoperitoneum) following the introduction of approximately 300 cc. of gas (patient sitting up).

5. Noting the kymographic recording of intratubal pressure and activity.

6. When uterosalpingography is used, the fluoroscopic observation of spill from the tubal ostia or roentgenographic visualization of free oil in the peritoneal cavity following injection of an opaque medium.

Pressure observations are important. Perhaps it does not matter whether this is read directly on a manometer or indirectly as when a recording kymograph is used, so long as pressure determinations are noted. Failure to observe pressure may lead to serious trouble. With a constant and not too rapid flow of gas (approximately 60 cc. per minute) the pressure normally rises to about 120 mm. of mercury and then drops to between 40 and 60 mm., where it tends to remain for the remainder of the test. Progressive and persistent rise in pressure may mean nonpatency. This may be apparent or real. It may be due to spasm of the sphincters sometimes noted in highly irritable tubes, especially at the time of ovulation, to a valvelike effect caused by a thick, velvety, premenstrual endometrium or to an actual organic obstruction. Many physicians failing to use care in the interpretation of pressure changes have diagnosed tubal closure and given a poor prognosis for conception, only to swallow their words when the happy and forgiving patient reports for antepartum care. Gas pressure writes its own story when recorded on a kymograph, and its interpretation along with minor fluctuation due to tubal peristalsis permits informative interpretation regarding tubal physiology.

Uterotubal insufflation without a constant source and flow of gas or benefit of manometric check on pressure as described in simplified technics is not recommended. Since air is commonly used in these abbreviated methods, there is danger of embolism as well as increased opportunity for faulty interpretation of findings.

The patient's subjective complaints during tube testing are likely to be informative, thus:

1. Bilateral lower quadrant pain with steady progressive rise in pressure usually means bilateral closure of the tubes at the fimbriae.

2. Bilateral pain with high but steady pressure (below 180 mm. of mercury) usually means bilateral narrowing of the tubal lumens at the fimbriae.

3. Unilateral pain with slightly elevated pressure means unilateral closure at the fimbria on the painful side.

4. Midline pain with steadily rising pressure means bilateral closure (or spasm) at the corneal ends of the tubes.

The interpretation of subjective symptoms should not be clouded by irregular or too rapid introduction of gas.

Auscultation of the tubes over the lower part of the abdomen was first suggested by Henderson and Amos.⁵ The gas percolating from the ends of the tubes may be heard as a low pitched soufflé. A high pitched note generally implies a small opening or excessive pressure. One cannot always identify the open tube by this means, since the tubal fimbriae may lie close together behind the uterus. Deception may occur as a result of gas bubbling through a hydrosalpinx or more frequently from a leak around the cannula in the cervix. The Colvin screw-type cannula minimizes leakage and does away with the need for tenacula on the cervix but has the disadvantage of not permitting escape of gas under excessive pressure.

Shoulder pain coming on when the patient sits up immediately after insufflation is one of the standard

confirmatory tests for tubal patency. It is due to subdiaphragmatic pneumoperitoneum and may affect either shoulder. The introduction of approximately 300 cc. of gas is necessary to produce this discomfort.

Kymographic recordings of gas pressure and tubal behavior are helpful and probably should be part of modern tubal insufflation equipment. The records so obtained may be interpreted quickly and form a permanent part of the patient's study. For details of tube graph evaluation reference should be made to basic contributions on this subject by Rubin,⁶ Wimpfheimer⁷ and Feresten⁸ and others.

INTERPRETATION OF TUBAL INSUFFLATION

I have already mentioned the criteria by which a diagnosis of tubal patency may be made following insufflation. When these criteria are present it is safe to assume that at least one tube is open. In the absence of such criteria it is to be presumed that the tubes are closed. While this presumption will generally prove correct, it is well to remember that closure may not be permanent and consequently a discouraging prognosis should not be given until closure has been confirmed by repeated testing on several different occasions.

In general, tubal insufflation is the procedure of choice for initial investigation of patency. When stenosis or complete closure has been diagnosed, a further check by means of uterosalpingography may be desirable, since it permits more accurate localization of the obstruction and allows better selection of cases for salpingostomy.

UTEROSALPINGOGRAPHY

At the University of Michigan Hospital during the past decade we have performed uterosalpingography over four hundred times. Approximately 300 were sterility patients; the remainder were checks on tube continuity following ligation or resection.

While the technic for tube visualization is well known, it may be well to emphasize those points which have an important bearing on maintaining this test as a highly successful and safe procedure.

The contraindications are identical with those already listed for uterotubal insufflation, genital tract infection being the most important stop sign.

As with gas insufflation, excessive pressure must be avoided. For highly informative thoroughly safe results all oil injections should be carried out under fluoroscopic control, taking care to use warm opaque mediums and only enough (6 to 10 cc.) to maintain adequate filling of the uterine cavity. The opaque medium used is a matter of considerable importance and should meet the following requirements:

1. It should give good contrast on roentgen visualization.
2. It must have sufficient consistency to permit ample time for study, including follow-up roentgenograms.
3. It should be neither too rapidly nor too slowly absorbed.
4. It must not cause irritation of mucous membranes or peritoneum.
5. It must be safe to use.

While none of the opaque mediums available appear to fulfil all these requirements satisfactorily there is every reason to believe that one will be found. Indeed, when an ideal medium becomes available we may also find that it contains many remedial and therapeutic

6. Rubin, I. C.: *Am. J. Obst. & Gynec.* 14: 557, 1927.

7. Wimpfheimer, S., and Feresten, M.: *Am. J. Obst. & Gynec.* 37: 405, 1939.

8. Feresten, M., and Wimpfheimer, S.: *Endocrinology* 24: 510, 1939.

5. Henderson, H., and Amos, T. G.: *Sterility Studies: Preliminary Report*, J. A. M. A. 78: 1791 (June 10) 1922.

properties now merely foreshadowed by existing preparations. In our hands lipiodol has proved quite satisfactory, although its slow absorption and possible irritant qualities are undesirable features. Rubin⁹ prefers visco-rayopake, while Titus, Tafel, McClellan and Messer¹⁰ recommend skioldan-acacia.

All patients in our study represent a cooperative effort in that the fluoroscopic examination is under the direct control and visualization of both roentgenologist and gynecologist. Much valuable data are obtained in this way. The filling of the uterine cavity and the slow passage of oil out into the tubal lumens may be observed directly. Leakage from the tubal ostia into the peritoneal cavity or around the cannula in the cervix may be noted and controlled. Since direct injection in the darkened fluoroscopic room does not permit ready pressure observation, the tension may be regulated by visualizing the filling of the uterine cavity and by noting the patient's subjective symptoms. A manometer with luminous gradations would permit accurate pressure recordings and a higher margin of safety. Evidence of tubal patency may be obtained at this time by seeing droplets of oil disappear from the outer ostia of the tube. This should be confirmed by roentgenograms taken following the fluoroscopic study. Since roentgenograms serve as a permanent record of findings, they should be obtained in every instance. In cases of doubtful patency or nonpatency, a twenty-four or forty-eight hour checkup roentgenogram is essential. These follow-up plates are highly important. They either confirm the nonpatency or else reveal definite but late escape of oil through the tubal ostia. Failure to take advantage of fluoroscopic examination and control at the time of injection and of roentgenographic follow-up studies some hours after injection doubtless accounts for some of the complications as well as faulty interpretations attributed to uterosalpingography. The presence of oil in the peritoneal cavity is proof of tubal patency.

INTERPRETATION OF UTEROSALPINGOGRAPHY

When tube status remains in doubt following insufflation or when salpingostomy is contemplated for tubal obstruction, salpingography comes into its own. For these cases it reigns supreme as a diagnostic test. In my opinion the localization of tubal obstruction permitted by uterosalpingography is far superior to any evidence made available through insufflation alone. This means that in approximately one third of women studied for sterility uterosalpingography serves as a useful and important diagnostic and prognostic aid. While fluoroscopic and roentgenographic findings during and after iodized oil injection are not difficult to read, their interpretation demands care. Final decision regarding nonpatency should not be based on fluoroscopic findings alone. A twenty-four or forty-eight hour checkup roentgenogram may show definite spill of oil into the peritoneal cavity—evidence that obstruction has at least in part been overcome. Spasm, when present, may vary in degree on the two sides; consequently the true status of both tubes may not always be clear at the time of injection. However, temporary occlusion is less likely to be misinterpreted with salpingography than with insufflation, since the follow-up roentgenogram showing oil in the peritoneal cavity tends to disprove the first gained impression of nonpatency.

MORBIDITY AND MORTALITY

Important in the evaluation of any test is the risk to the patient. We have no way of knowing how many deaths and to what extent febrile morbidity has occurred following the use of these tests. Certainly it is improbable that reported cases represent the whole story. On the basis of data available, it appears that less than 1 patient in a thousand suffers any morbidity following uterotubal insufflation. Morbidity following uterosalpingography is higher. Most trouble appears to have resulted from failure to rule out genital tract infection.

Injection of oil into the uterine and ovarian veins during salpingography has been reported many times. The symptoms associated with this complication do not appear to be severe and according to Green-Armytage¹¹ consist of little more than transient nausea and vomiting. Actual visualization of oil in the pelvic veins following salpingography should not blind us to the fact that this accident probably occurs quite as often during uterotubal insufflation. Since air embolism may be a serious matter, it is well to emphasize again the desirability of using the more soluble carbon dioxide for tubal insufflation.

The mortality rate must be extremely low and in gas perturbation was caused chiefly by air embolism. At least 6 cases have been reported, to wit:

1. Moench.¹² Gas inflation, tubes closed, death. Autopsy revealed gas in the heart chambers. Gas embolism diagnosed as cause of death.
2. Moench.¹² Oxygen insufflation, tubes patent at 200 mm. of mercury, death. Autopsy revealed gas in the heart, veins and abdomen, perforated small intestine and a question of perforation of the uterus.
3. Dibble, Hewer, Roes and Walsh.¹³ Tubal insufflation pressure at 150 to 200, sudden death. Autopsy revealed air embolism.
4. Mansfield and Dubits.¹⁴ Gas insufflation, death. Autopsy revealed tuberculous endometritis and air embolism.
5. Weitzman.¹⁵ Insufflation, convulsion and death. Autopsy revealed air embolism.
6. Feiner.¹⁶ Woman aged 26; insufflation with oxygen pressure at 160 mm. of mercury. Death within one-half hour. Diagnosis, rupture of coronary vein, hemipericardium, pulmonary thrombosis and chronic myocarditis.

I have been unable to discover any recorded fatality following the use of carbon dioxide. At least nine deaths have been reported following uterosalpingography. Most of these deaths are reported in European literature and I have not been able to run down the original articles to permit a check on the actual cause of the fatality. Deaths following uterosalpingography follow. This may not represent a complete list and obviously does not include unrecorded cases:

1. Gauss.¹⁷ Five deaths in 3,000 collected cases.
2. Schultze.¹⁸ Three deaths in 8,000 collected cases.
3. Feiner.¹⁶ One death. Patient died fourteen days following lipiodol injection, of widespread generalized peritonitis.

Most fatalities following the use of either air or oil occurred in the earlier years when the patency tests were in their developmental stage.

11. Green-Armytage, V. B.: *J. Obst. & Gynec. Brit. Emp.* 50:23, 1943.
12. Moench, G. L.: Two Cases in Which Death Followed Insufflation of the Fallopian Tubes, *J. A. M. A.* 89:522 (Aug. 13) 1927.
13. Dibble, J. H.; Hewer, T. S.; Roes, A. O. F., and Walsh, C. H.: *Lancet* 1:313, 1938.
14. Mansfield, O. P., and Dubits, A.: *Zentralbl. f. Gynäk.* 58:211, 1934.
15. Weitzman, C. C.: *New York State J. Med.* 27:1582, 1937.
16. Feiner, David: *Am. J. Obst. & Gynec.* 42:639, 1942.
17. Gauss, C. J.: *Zentralbl. f. Gynäk.* 51:1824, 1927.
18. Schultze, G. K. F.: *Ztschr. f. Geburtsh. u. Gynäk.* 101:413, 1931.

9. Rubin, J. C.: *J. Mount Sinai Hosp.* 7:479, 1941.
10. Titus, P.; Tafel, R. E.; McClellan, R. H., and Messer, F. C.: *Am. J. Obst. & Gynec.* 33:164, 1937.

EVALUATION OF TUBAL PATENCY TESTS

In the past, uterotubal insufflation and uterosalpingography have been looked on as competitive tests, and this they doubtless are, for both are methods of determining tubal patency. Now that both have been thoroughly tested and proved, it is proper that they be looked on as complementary procedures, one supplementing the other. As the initial step in determining tubal patency, insufflation is to be preferred. In the majority of cases this test alone will give all needed information. For doubtful cases and in cases presenting definite evidence of nonpatency I prefer uterosalpingography with its visual proof of tube status and opportunity for better evaluation when salpingostomy is considered. Iodized oil injection may exert a therapeutic effect on the closed viscus. Repeated iodized oil injection may be expected to result in reopening a few closed tubes. Just how often this will occur must depend in large measure on the severity of the obstruction as well as on the number of reinjections carried out. No accurate statistics can be given on this point. A comparison of the tests from the standpoint of diagnostic value would doubtless precipitate many arguments both for and against each method. Such comparisons as have been carried out in the past have served to emphasize the importance of interpretation. The fact that one test shows nonpatency whereas patency is proved by the other test a few days later does not indicate superiority of one method over the other as a means of determining tubal continuity. The situation could easily have been reversed and is readily explained on the basis of tube spasm or other transitory interference with patency. Both tests are useful, and while either will permit evaluation of tubal patency they each have a particular field of usefulness in the study of sterility and of tubal physiology. For the determination of patency alone insufflation with carbon dioxide is given first choice, but this test is useless as a means of visualizing the tubes and it is here that the salpingogram dominates the field. It is in this manner that the tests supplement each other.

I consider uterosalpingography an essential preliminary to contemplated salpingostomy. Furthermore, such operative procedure on the tubes should not be carried out until several checks for tubal patency have been made, since it is well known that spontaneous restoration of tubal continuity occasionally takes place.

There can be no doubting the fact that both tests have a therapeutic as well as a diagnostic value. The fact that pregnancy occurs within a month or two after tubal patency determination is proof of such therapeutic value. Doubtless success is accomplished by mechanical means through the removal of a mucous plug or old blood or the disruption of adhesions which may have been sufficient to interfere with migration of the ovum.

Many writers have attempted statistical evaluation of tubal patency tests. Such mathematical assay is interesting and could be valuable were there some way of obtaining reasonable accuracy. However, the fact that many patients conceive without benefit of medical aid, while others receive local and/or general treatment in addition to tube testing, makes statistical evaluation something little better than a guess. This is especially true when many months have elapsed between the test and the time of conception. Since reported series probably represent a small minority of the total tube testings carried out throughout the world, and these under

favorable conditions at that, it is obvious that data on therapeutic benefits as well as on morbidity are grossly inaccurate and incomplete. The most that can be said is that when properly performed the morbidity following tube testing is extremely low. We should not assume too much in the way of remedial benefit from the use of these tests. The occasional resolution of tubal obstruction as a result of repeated iodized oil instillations has been claimed. I have noted a return of patency in some patients following repeated injections. This apparent remedial aspect of uterosalpingography is difficult to evaluate but in time and with improved injection mediums may prove to be a real boon to sterility patients.

Uterotubal insufflation with carbon dioxide gas and uterosalpingography are today the principal two methods of studying tubal patency and physiology in the human being. These tests should not be looked on as competitive procedures, for each has its field of usefulness as well as its limitations. One supplements the other, and both are essential for comprehensive evaluation of the part played by the tubes in sterility of the female. When properly performed with full knowledge of both indications and contraindications, they are safe and highly informative.

THE INCIDENCE OF DIABETES MELLITUS AND GLYCOSURIA IN INDUCTEES

WITH NOTES ON SOME PROBLEMS IN DIAGNOSIS

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The statistical observations in this paper were stimulated by the editorial¹ appearing in THE JOURNAL on April 8, 1944. The high incidence of diabetes mellitus found by Blotner and his co-workers² in urban New England warranted a study in another part of the country where other economic, social and racial factors are at work.

This survey is based on 32,033 consecutive selectees processed at the New Orleans Induction Station. Although the number of examinees in our series is only about one third less than in the survey reported by Blotner,² the number of men with diabetes in our group is much smaller. In our group there were only 37 cases of glycosuria, and of these only 9 appeared to be true diabetes mellitus. Thus our group showed a rate of 1.15 per thousand for glycosuria and slightly less than 0.3 per thousand for diabetes.

This is in wide variance with the figures presented by Blotner and his co-workers,² who found among their 45,650 selectees 367 cases of glycosuria, or 8 per thousand; and of these more than half, or 208, were cases of diabetes (4.5 per thousand). This, as was pointed out in the editorial,¹ is a high rate in both categories. Our rate for glycosuria of 1.15 per thou-

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1. The Incidence of Diabetes in Selectees, editorial, J. A. M. A. 124:1062 (April 8) 1944.

2. Blotner, H.; Hyde, R. W., and Kingsley, L. V.: Studies in Diabetes Mellitus and Transient Glycosuria in Selectees and Volunteers. New England J. Med. 229:885, 1943.

sand compares favorably with rates reported by other observers. Sydenstricker and Britten³ reported that glycosuria in the age group 20 to 24 occurs at the rate of 1.1 per thousand, increasing to 2.2 per thousand in the group 30 to 34. Dublin and his co-workers⁴ found that frank glycosuria under 25 years of age occurs at the rate of 1 per thousand, going up to 3 per thousand between 25 and 34 years of age. In a mixed group of insurance applicants reported by Marble⁵ the incidence of glycosuria was found to be 2.8 per thousand. However, our diabetic rate of 0.28 per thousand is a good deal lower than the national health survey rate of 0.6 per thousand in the age group 15 to 24 and 0.9 per thousand in the age group 25 to 34.

Although the number of diabetic individuals in our group is small, the group of selectees is sufficiently large to make our statistics of some significance. The question that immediately arises is Why is there so much discrepancy between our findings and those of the New England workers? Our group differs in several respects from the other group. All these differences would tend to diminish the incidence of diabetes.

The two groups differ slightly in age. The selectees we studied were examined in 1944, when very few men over 35 years of age were inducted. Thus our group is practically confined to the age group 18 to 35. The New England studies were reported in 1943 and admittedly included age groups up to 45. That the incidence of diabetes increases rapidly with increasing age is well established. Thus, Joslin, Dublin and Marks⁶ found that diabetes is nearly three times more common in the age group 40 to 45 than it is in the younger group of 20 to 39. Sydenstricker and Britten³ also noted a tripling of incidence in the older group of 40 to 45 as compared with the younger group of 25 to 29.

The incidence of diabetes varies widely in its geographic distribution. The lowest rate in the United States is found in the rural South and the highest in the urban and highly industrialized Eastern seaboard and New England states. Joslin and his co-workers⁶ found that the mortality from diabetes in the white population of Rhode Island was 26.9 per hundred thousand and of New York 26.7 per hundred thousand, while in Louisiana the mortality was only 13.2 per hundred thousand and in Arkansas 8.3 per hundred thousand. Himsworth⁷ also points out that the diabetic death rate is twice as high in the North as it is in the South and ascribes this to the difference in diet.

Race is also an important factor in the incidence of diabetes. It is less common among Negroes both in the North and in the South as compared with the white population in these regions. Its incidence is lower in the Southern than in the Northern Negro.⁸ One third of our group of selectees were Negroes and hence would contribute to the lowering of the incidence of this disease in our group.

Recent publications suggest that diabetes is an uncommon factor for rejection for military service. Rowntree,⁹ reporting on the estimated causes for rejection of selectees in the age group 18 to 37, does not mention diabetes in his statistics. Diabetes is probably included under the heading of "Endocrine Disorders," which is responsible for 1 per cent of rejections, or under the heading of "Other Medical Defects," with a rejection rate of 0.6 per cent. Likewise, in the report by Gallagher and Brouha¹⁰ diabetes is not mentioned in the enumeration of various causes for rejection.

Another and perhaps very important cause for variation of the different statistics dealing with the incidence of diabetes depends on the criteria of diagnosis. In the diagnosis of the mild and previously undetected disease, which is usually unaccompanied by symptoms, the glucose tolerance test may be the sole criterion. There are several methods of performing this test. The boundary line between the normal and the abnormal curve is not sharp, varies with different authorities and at best is beset by many pitfalls. Finally, even a definitely abnormal and diabetic-like curve may not be due to diabetes.

In the most commonly used test, in which 100 Gm. of glucose is administered orally, the "normal" individual shows a maximum rise of the blood sugar to between 170 and 180 mg. per hundred cubic centimeters and at two hours a return to the fasting level.¹¹ The fasting blood sugar should be between 80 and 120 mg. per hundred cubic centimeters of blood. Joslin¹¹ places the greatest emphasis on the rise of the blood sugar, stating that a value of over 170 mg. per hundred cubic centimeters ordinarily justifies a diagnosis of diabetes. Marble¹¹ adds that a return to the fasting level in two hours is an important criterion. But what if the fasting level is 70 to 80 mg. per hundred cubic centimeters and a two hour value is 10 to 15 mg. above this? Are we justified in calling such a curve diabetic or even pathologic? John¹² relaxes the latter criterion somewhat by assuming that a return of blood sugar to 120 mg. per hundred cubic centimeters of blood or lower in two and one-half hours can be considered within limits.

No clinical test can be interpreted too strictly and specific diagnostic implications made therefrom. A glucose tolerance curve is no exception. Many pathologic and physiologic states can have a profound influence on blood sugar and carbohydrate tolerance. Differences in the rate of intestinal absorption will have an influence on the oral glucose tolerance test. Malfunction of other endocrine glands (besides the pancreas) and the liver¹³ can produce diabetic-like glucose tolerance curves. Obesity may be accompanied by disturbed carbohydrate tolerance.¹⁴ The influence of emotions¹⁵ and previous diet¹⁶ on the glucose tolerance curve are well known.

9. Rowntree, L. G.: National Program for Physical Fitness, J. A. M. A. 125: 821 (July 22) 1944.

10. Gallagher, J. R., and Brouha, L.: Physical Fitness, J. A. M. A. 125: 834 (July 22) 1944.

11. Joslin, E. P.; Root, H. C.; White, Priscilla, and Marble, Alexander: The Treatment of Diabetes Mellitus, ed. 7, Philadelphia, Lea & Febiger, 1940. Marble, Alexander: Renal Glycosuria, Am. J. M. Sc. 132: 811, 1932. Bodansky.¹²

12. John, Henry J.: The Differential Diagnosis of Glycosuria, Am. J. Digest. Dis. 11: 313, 1944.

13. Soskin, Samuel: Endocrine Disturbances in the Regulation of the Blood Sugar, Clinics 1: 1286, 1943.

14. Newburgh, L. H., and Conn, J. W.: A New Interpretation of Hyperglycemia in Obese Middle Aged Persons, J. A. M. A. 112: 7 (Jan. 7) 1939.

15. Bodansky, Meyer, and Bodansky, Oscar: Biochemistry of Disease, ed. 2, New York, Macmillan Company.

16. Sweeney, J. S.: Dietary Factors That Influence the Dextrose Tolerance Test, Arch. Int. Med. 40: 818 (Dec.) 1927. Himsworth, H. P.: Dietetic Factors Influencing the Glucose Tolerance and the Activity of Insulin, J. Physiol. 81: 29, 1924.

3. Sydenstricker, Edgar, and Britten, R. H.: Physical Impairments of Adult Life: Prevalence at Different Ages, Based on Medical Examinations by the Life Extension Institute of 100,924 White Male Life Insurance Policyholders Since 1921, Am. J. Hyg. 11: 95, 1930, cited in editorial.

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7. Himsworth, H. P.: Diet and the Incidence of Diabetes Mellitus, Clin. Sc. 2: 117, 1935.

8. Joslin, Dublin and Marks.⁶ Himsworth.⁷

Antecedent diet is probably the commonest disturbing factor. Since dietary histories are notoriously unreliable, it has been recommended to place the candidate on a high carbohydrate diet before the tolerance test is performed. This is quite impractical, especially when larger groups of individuals are studied, as in

TABLE 1.—Normal *Exton-Rose* Tests

Case	Fasting Blood Sugar	½ Hour	1 Hour
1.	81	129	138
2	89	108	86
3	106	128	133
4.	98	163	169
5	90	117	106
6.	83	133	115
7..	80	121	87
8	83	123	138
9	91	128	134
10.	93	111	97
11.	95	125	115
12	78	141	116
13	96	122	127
14	86	111	102
15	99	153	89
16	110	170	132
17	99	120	115
18	85	105	125
19	105	146	125

military practice. The "Exton-Rose" test,¹⁷ in which two 50 Gm. doses of glucose are administered at half hour intervals, was supposed to obviate this difficulty. The first dose presumably primed the carbohydrate regulating mechanism so that the second dose of glucose produced a drop or only a slight rise in the blood sugar. Thus, according to the early standards laid down by Exton and Rose,¹⁷ a normal curve should include (1) normal fasting blood sugar, (2) one-half hour after the first dose of glucose a rise in blood sugar not to exceed 75 mg. per hundred cubic centimeters of blood, and (3) one-half hour after the second dose of glucose a rise in blood sugar not to exceed 5 mg. per hundred cubic centimeters of blood. Wayburn and Gray¹⁸ agreed that this test obviates the influence of previous diets on the glucose tolerance curve but used a two hour determination to distinguish the severe cases of disturbed carbohydrate metabolism.

Many observers, however, disagree with the conception that previous diet had no influence on the "Exton-Rose" curve and also the standard of normality set down by Exton and Rose.¹⁷ Thus, Sweeney and his co-workers¹⁹ as well as Langner and his co-workers²⁰ concluded that a high fat diet would distort the Exton-Rose curve to the diabetic side. The latter workers²⁰ also considered a blood sugar of over 140 either at the half-hour or one hour period as abnormal. Langner and Dewees²¹ concluded that the original interpretation as set down by Exton and Rose¹⁷ is too rigid and would label many normal individuals diabetic. They agreed with Matthews and his co-workers²² that the

emphasis on the rise between the first and the second dose of glucose is not justified and that if the one hour value does not exceed 160 mg. per hundred cubic centimeters of blood the response should be considered normal. If this value is 160 to 180 mg. of sugar per hundred cubic centimeters of blood it should be called borderline, but if over 180 it should be considered as definitely diabetic. Gould and his co-workers²³ allow for a total rise of less than 80 mg. of glucose per hundred cubic centimeters of blood but contend that in a normal individual the one-half hour rise should be under 50 mg. and the one hour rise under 30 mg. per hundred cubic centimeters of blood. Thus it can be readily seen that the criteria of normality vary widely with this test.

We used the "Exton-Rose" test first on all our patients. This procedure has technical advantages which are helpful in surveys of large numbers of patients, since only three blood sugar determinations are required and the test lasts only one hour. If the rigid criteria of Exton and Rose are applied, perhaps with slight modifications, all diabetic persons are immediately ruled out by a normal response. Nineteen of our 37 cases (table 1) studied for glycosuria gave a normal Exton-Rose response. Fasting blood sugars varied between 80 and 110 mg. per hundred cubic centimeters of blood and all except three had a blood sugar below 100. The greatest rise of blood sugar after the first dose of dextrose was 65 mg. per hundred cubic centimeters of blood. The blood sugar after the second dose of glucose showed a fall in 12 of the 19 cases. The other 7 showed a rise of 5 to 20 mg. of dextrose per hundred cubic centimeters of blood. One 15 and one 20 mg. rise were included in this normal group, although it is above the maximum rise permitted by Exton and Rose, because these occurred in persons with essentially low blood sugar values. The 20 mg rise (case 18, table 1), which was from 105 to 125 mg., was the highest, and the 15 mg rise (case 8, table 1), in which the highest blood sugar value was 138 mg. per hundred cubic centimeters of blood.

TABLE 2.—Abnormal *Exton-Rose* and Normal Three Hour Glucose Tolerance Tests

Case	Abnormal Exton Rose Tests			Normal Three Hour Glucose Tolerance Tests				
	Blood Sugar per 100 Cc of Blood			Blood sugar per 100 Cc of Blood				
	Fast mg	½ Hour	1 Hour	Fast mg	½ Hour	1 Hour	2 Hours	3 Hours
1	101	123	154	95	117	111	90	80
2	94	140	167	83	129	135	61	80
3	86	125	142	80	100	133	106	76
4	93	110	148	88	114	101	92	80
5	72	121	140	80	120	95	92	77
6	100	183	145	102	180	133	91	68
7	112	210	182					
	101	139	152	106	110	111	108	80
8	91	212	160	96	133	167	98	83
9	106	215	235	102	174	143	76	74
10	92	144	222	100	166	160	111	66

When the Exton-Rose curve gave "abnormal" values another glucose tolerance test was done the following day, using 100 Gm. of glucose in one dose and doing blood sugar determinations for three hours. Ten of our group of glycosurias gave abnormal Exton-Rose curves followed by a normal three hour glucose tolerance curve

17 Exton, W. G., and Rose, A. The One Hour Two Dose Glucose Tolerance Test, *Am. J. Clin. Path.* 4: 381, 1934

18 Wayburn, E., and Gray, Horace. The Two Dose Glucose Tolerance Test, *Am. J. M. Sc.* 204: 823, 1942.

19 Sweeney, J. S., Muirhead, J. J., and Allday, L. E.: Observations on the One Hour Two Dose Dextrose Tolerance Test, *Am. J. Clin. Path.* 7: 482, 1937

20 Langner, P. H., and Fies, H. L. The Influence of Antecedent Diet on the Exton-Rose One Hour Two Dose Glucose Tolerance Test, *Am. J. Clin. Path.* 11: 41, 1941.

21 Langner, P. H., and Dewees, E. J. Instances of Disagreement in the Results of Two Types of Oral Glucose Tolerance Tests, *Am. J. M. Sc.* 204: 85, 1942.

22 Matthews, M. W.; Magath, T. B., and Berkson, J. The One Hour Two Dose Dextrose Tolerance Test, *J. A. M. A.* 113: 1531 (Oct. 21) 1939.

23 Gould, S. E.; Altshuler, S. S., and Mellen, H. S.: The One Hour Two Dose Glucose Tolerance Test in the Diagnosis of Diabetes Mellitus, *Am. J. M. Sc.* 193: 611, 1937.

(table 2). The first five of these ten Exton-Rose curves would have been considered normal by the more liberal interpretation of this test.²⁴ This again shows that the criteria of Exton and Rose would label some normal persons diabetic. The last five "Exton-Rose" tests (table 2) are definitely abnormal by all criteria,

cubic centimeters of blood with a return to normal fasting level at the end of two hours and only 66 mg. at three hours.

The 9 patients with diabetes (table 3) showed completely abnormal glucose tolerance tests both by the Exton-Rose curve and by the three hour test. The fasting blood sugar was above 120 mg. per hundred cubic centimeters in only 2 individuals. The one hour value in the Exton-Rose curve was higher than the

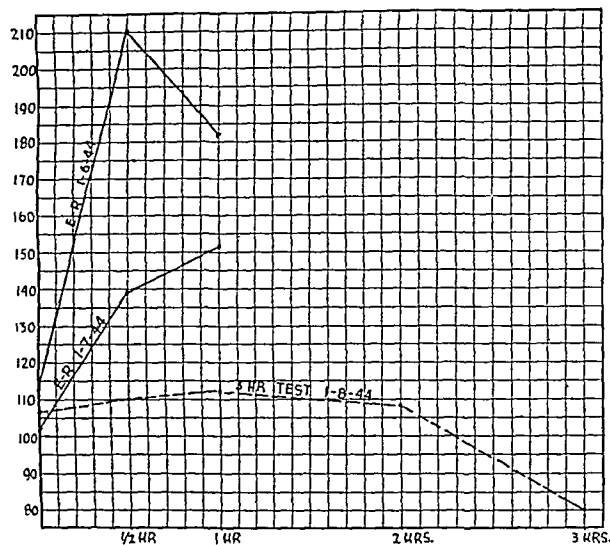


Chart 1.—Exton-Rose and three hour tests in case 7, table 2.

and if we had stopped here a diagnosis of diabetes would have been made in these cases. The three hour glucose tolerance tests, however, done the following day were normal in all these cases. The maximum height of the blood sugar in these three hour curves was 180 mg. per hundred cubic centimeters of blood occurring only in 1 case. A level of 174 mg. per hundred cubic centimeters of blood was recorded in another case. The rest showed all values below 170 mg. The blood sugar returned to a normal fasting level in two hours and in most was below the control value of that individual.

The change of the glucose tolerance curve from one day to the next was quite remarkable. Case 7, table 2, is especially noteworthy. The first Exton-Rose curve showed a fairly high normal fasting blood sugar of 112 mg. of dextrose per hundred cubic centimeters of blood, followed by a rise of nearly 100 mg. after the first dose of glucose. Although a fall of blood sugar occurred after the second dose of glucose, this value was still over 180 mg. The next day the fasting blood sugar was lower; the first rise was only 38 mg. per hundred cubic centimeters of blood. After the second dose of glucose there was a rise of only 13 mg., so although according to the standards of Exton and Rose¹⁷ this is still an abnormal response, according to all the other interpretations²⁵ this is to be considered normal. On the third day a three hour test yielded a flat curve with a fall of blood sugar at three hours to a level 26 mg. below fasting (chart 1). Another case worth mentioning is case 10, table 2 (chart 2). The Exton-Rose curve again is abnormal according to all criteria, with the one hour value being 222 mg. of glucose per hundred cubic centimeters of blood. The three hour test the following day was normal in all respects, the maximum rise being to 166 mg. of sugar per hundred

TABLE 3.—Glucose Tolerance Tests in Diabetic Patients

Case	Exton-Rose			Three Hour Test				
	Fasting	1/2 Hour	1 Hour	Fasting	1/2 Hour	1 Hour	2 Hours	3 Hours
1	120	206	206	118	200	232	200	98
2	180	206	276					
3	122	216	302	119	232	332	338	208
4	102	144	238	97	209	200	106	80
5	97	192	250	98	195	250	206	88
6	94	222	298	100	215	245	160	130
7	86	125	166	93	122	170	174	108
8	86	105	181	89	160	200	140	67
9	103	154	247	114	216	280	278	190

half-hour value in all but 1 case. In the latter the two values were the same. The one hour value was above 200 in all but 2, and in 4 it was 250 mg. per hundred cubic centimeters of blood or higher. In the three hour test the return of the blood sugar to fasting level was definitely slow. Only 1 case (case 4, table 3) showed a normal value at two hours. In 3 patients the three hour value was above normal. It seems that the rate of return of the blood sugar to a fasting level is a more certain criterion of diabetes than the height of the blood sugar.

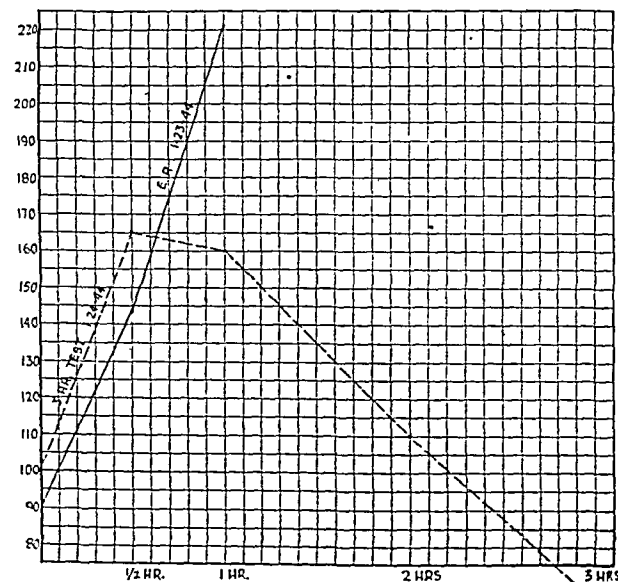


Chart 2.—Exton-Rose and three hour tests in case 10, table 2.

Two cases in this group (table 3) showed borderline curves. Case 7, table 3, had a borderline Exton-Rose curve. The three hour test showed a slow rise in blood sugar and the half hour value was only 122 mg. of glucose per hundred cubic centimeters of blood, but the two hour value was 174 mg. A temporary disturbance of intestinal motility, such as duodenal or pyloric spasm, may have interfered with absorption; hence the slow

24. Langner and Dewees.²¹ Matthews, Magath and Berkson.²²
25. Langner and Dewees.²¹ Matthews, Magath and Berkson.²² Gould, Altshuler and Mellen.²³

rise in blood sugar and the hyperglycemia at two hours. Case 4 had a grossly abnormal Exton-Rose curve. The only abnormality, however, in the three hour curve was the rise of the blood sugar to 209 mg. per hundred cubic centimeters of blood. The return to a normal value occurred in two hours. A curve of this type could conceivably be due to rapid absorption from the intestine and some delay in glycogenesis by a mildly disturbed liver function.

The phenomenon shown in table 2 of a highly abnormal "Exton-Rose" test followed the next day by a perfectly normal three hour glucose tolerance curve is of great significance. It emphasizes the danger of establishing the diagnosis of diabetes on the basis of a single glucose tolerance curve. Unless the first glucose tolerance test is highly abnormal, that is, one which shows a very great rise of blood sugar (above 250 mg.), failure to return to the fasting level in three hours (three hour curve) and a fasting level above 120 mg., another glucose tolerance curve should be done the following day. The first abnormal glucose tolerance response may be dependent on the fact that the patient subsisted on a high fat diet. The administration of the hundred grams of glucose in the first test stimulates the patient's carbohydrate regulating mechanism and results in a normal glucose tolerance curve the following day. This apparently occurred in our case in table 2. The one hour two dose test may be preferable as the first test because of its technical advantages. If this test is normal it may be safely concluded that diabetes mellitus is ruled out.

Other factors may influence the oral glucose tolerance, such as rate of intestinal absorption and motility. Many factors may disturb carbohydrate metabolism¹³ besides true diabetes, and some of these disturbances may be transient. Many nondiabetic persons will be labeled diabetic if a strict interpretation of one glucose tolerance test is used as the sole basis for diagnosis.

SUMMARY AND CONCLUSIONS

1. Of 32,033 inductees examined in New Orleans, 37 had glycosuria.
2. Only 9, or 0.28 per thousand, had diabetes mellitus.
3. The one hour two dose (Exton-Rose) glucose tolerance curve is useful in the routine study of large groups of individuals.
4. One abnormal glucose tolerance curve may be due to a previously abnormal diet and should not serve as a basis for a positive diagnosis of diabetes.
5. If another dextrose tolerance curve is done the following day, it may be completely normal, as found in 10 of our cases.
6. The diagnosis of diabetes on the basis of one mildly abnormal glucose tolerance test is unjustified.

Humane Education for Medicine.—A humane education is an invaluable asset to any youth embarking on the study of medicine. I am aware that I raise the banner of a forsaken cause when I say this; but nevertheless, twenty-five years of clinical teaching have fully persuaded me that, when I find a clinical clerk who can stand up and read at a ward visit a case history that is a well ordered, lucid and fluently expressed account of the patient and his situation, that student will almost invariably be found to have had a sound education and not a mere course of instruction of the polytechnic order, a utility education.—Walshe, F. M. R.: *The Integration of Medicine*, Brit M. J., May 26, 1945.

AEROSOL PENICILLIN IN GENERAL PRACTICE

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FOREST HILLS, N. Y.

My object in this presentation is to demonstrate the advantages of the Barach aerosol penicillin method¹ as an effective, inexpensive means of treatment which eliminates some of the present difficulties of penicillin administration. It makes penicillin therapy readily available to the general practitioner in the office and to the patient in the home. The particular value of the technic in upper respiratory infections is emphasized, since a large proportion of conditions for which penicillin is required in general practice are the acute bacterial invasions and chronic bacterial infections of the upper respiratory tract which develop into parasitic states.² In many of these cases it appears to be more efficient than the parenteral method.

The preeminent value of parenteral penicillin therapy in many infections and its freedom from severe reactions have now been established by a mass of clinical evidence. The only real disadvantage found in penicillin treatment has been the necessity for frequent intramuscular injections or continuous intravenous administration. It is generally considered that hospitalization and continual medical supervision and nursing care are essential. However, various technics are being tested by means of which adequately bacteriostatic levels of penicillin may be maintained in the body with less frequent injection or by oral administration.³

A number of investigators have reported the therapeutic value of the sulfonamides in respiratory infections when administered by inhalation of vaporized solutions. A comparable technic of administering penicillin has been described by Barach,¹ Bryson,⁴ and Knott and Clark.⁵ These papers, especially that of Barach, should be consulted for a full description of the various steps by which a satisfactory technic for inhaling penicillin solution was developed. The preliminary investigations⁶ showed that a highly concentrated penicillin solution could be nebulized and inhaled as a mist without diminishing its potency; Knott and Clark⁵ found that

1 Barach, Alvan L., Silberstein, Frederick H.; Oppenheimer, Enid T., Hunter, Thomas, and Soroka, Max. Inhalation of Penicillin Aerosol in Patients with Bronchial Asthma, Chronic Bronchitis, Bronchiectasis and Lung Abscess. Preliminary Report, *Ann Int Med* 22:485 (April) 1945.

2 The symptoms caused by chronic infection with a specific organism are apparently not yet widely recognized, although such parasitic bacterial states may cause a diversity of symptoms in tissues other than the upper respiratory tract. There is need of a definitive term for such chronic infections, one more exact than "focal infection" and one which implies a balance between the resistance factors of the host and the adaptation of the bacterial cells to these resistance factors. Colin MacLeod (personal communication) observed patients in whom specific pneumococcus types persisted for over ten years. From 1 patient in the author's series MacLeod repeatedly cultured pneumococcus types XIII and XIX over a period of six years. Although there were no extrinsic allergies, many allergic symptoms developed which responded dramatically to aerosol penicillin, as they did in other similar cases. R. A. Goodwin Jr., Clare Wilcox and Maxwell Finland (Persistence of Pneumococci in Sulfonamide Treated Cases of Pneumonia, *Am. J. M. Sc.* 209:629 (1945)) describe the persistence of pneumococci for shorter periods after sulfonamide therapy. Homer Swift (personal communication) and Norman Plummer, D. R. Duerschner, H. D. Warren, F. T. Roghano and R. A. Sloan (Penicillin Therapy in Hemolytic Streptococcal Pharyngitis and Tonsillitis, *J. A. M. A.* 127:369 [Feb 17] 1945) state that persistent infections due to certain Lancefield types of streptococci should be treated before complications develop. In this group of cases several persistent group A streptococcal infections involving the upper respiratory tissues appear to have been eliminated by aerosol penicillin therapy when parenteral penicillin failed.

3 Prolonging the Action of Penicillin, editorial, *J. A. M. A.* 127:161 (Jan 20) 1945; Oral Penicillin, *ibid.* 127:1129 (April 28) 1945.

4 Bryson, Vernon, Sansome, Eva, and Laskin, Sidney. Aerosolization of Penicillin Solutions, *Science* 100:33 (July 14) 1944.

5 Knott, F. A., and Clark, W. H. Absorption of Aerosol Penicillin via the Lungs, *Lancet* 1:468 (April 14) 1945.

6 Barach, Silberstein, Oppenheimer, Hunter and Soroka. *Bryson, Sansome and Laskin*.

penicillin dispersed as an aerosol in a room was fully active for at least ninety minutes. No significant differences could be detected in microscopic lung sections of rats which had been given inhalations of penicillin, neosynephrin, sulfathiazole, sulmeprin, 20 per cent potassium iodide solution and 2.5 per cent sulfadiazine in ethanolamine solution, as compared with those given saline inhalations or no treatment.¹ Thus, the deposition of penicillin in the lung tissues by aerosolization is apparently safe.

Inhalation of sodium penicillin by nearly all patients was carried out without by-effects. The calcium salt of penicillin was later found to produce a superior aerosol. It was also preferred by patients because it had less odor and was much less likely to cause coughing. The minor side reactions observed by Barach are discussed later.

One objective of the aerosol technic is to bring the highly antibiotic penicillin into closer contact with the actual infecting organisms; this is analogous to the injection of penicillin solution into empyema cavities or into the spinal fluid in meningitis. It is thus evident that the local application and concentration of penicillin at the site of infection are more significant than the blood level or the urinary excretion of the drug. Both of these values are measures of the absorption of penicillin and not actual indications of its clinical effectiveness, at least so far as topical application is concerned. It is of interest to note, however, that penicillin is readily absorbed from the lungs; high blood levels are attained when long slow breathing, with a pause before exhaling, is practiced. Blood concentrations of from 0.01 to 0.04 unit per cubic centimeter and as high as 0.18 unit were found during the first fifteen minutes to one hour after inhalation of from 20,000 to 70,000 units.¹ In the present investigation, when the new type of nebulizer and cut off valve were used, a 50 pound (23 Kg.) boy had a blood level of 0.02 unit per cubic centimeter one hour after inhaling 7,000 units of penicillin. The blood concentration in an asthmatic man weighing 180 pounds (82 Kg.) was 0.05 unit per cubic centimeter one-half hour after a 20,000 unit inhalation. Similar concentrations were found in many other cases. Actually any desired blood level of penicillin may be obtained by the aerosol method if more frequent intermittent or continuous inhalation through an oxygen mask is employed.

The percentage recovery of penicillin in the urine varies. Using a less refined nebulizer, from 10 to 20 per cent of the total dose of penicillin was recovered in twenty-four hours in Barach's reported cases;¹ using more efficient apparatus the recovery ranged from 30 to 50 per cent.⁷ With slow, deep inhalations that are held for several seconds, urinary recovery is greater because the blood concentration is generally higher.

TECHNIC AND DOSAGE

The apparatus required for the nebulization of penicillin is available from most oxygen equipment companies and may be obtained for about \$10 if a small portable oxygen tank is used. A physician with ten or more outfits can treat at least 20 cases a week without nursing assistance, once the method of using the apparatus is understood by the patient. Outfits may be placed in the home for use of patients too ill to come to the office.

The apparatus now used consists of an oxygen tank equipped with a valve for controlling the flow of oxygen

at about 4 liters per minute. (Optionally, another automatic valve may also be used to cut off the flow of oxygen except during inspiration.) Oxygen flows to the Vaponephrin nebulizer by tubing attached to the intake arm. A Y tube is inserted at some point in the rubber tubing, leaving one arm of the Y free. The aperture at the top of the nebulizer is left open. An improvement consists in the attachment of a 1,000 cc. bulb with a hole at the top to the original nebulizer at the carburetor. This permits some economy in the use of penicillin, but it is not essential. This apparatus has been found satisfactory. Barach describes some modifications of it in his report.

Sodium penicillin⁸ (or the calcium salt) is prepared by dissolving the drug in sterile isotonic solution of sodium chloride in such amounts that from 0.5 to 1 cc. contains the desired dosage. As a rule the dose in adults is 25,000 in 1 cc., although 50,000 units per cubic centimeter is frequently used. After nebulization of the penicillin solution, 0.5 cc. of isotonic solution of sodium chloride is injected into the nebulizer and also inhaled, thus avoiding waste of penicillin. (An aqueous solution of penicillin is irritating when inhaled. The lighter colored preparations are preferred by patients because they taste better.) In cases of sinusitis, neosynephrin or priline is used as nose drops to open the sinuses; in asthma and other conditions causing bronchospasm 0.5 cc. of 0.25 per cent neosynephrine may first be inhaled from the nebulizer so that penicillin may be more effectively brought into contact with the desired areas. The nebulizer must be rinsed out before subsequent use with penicillin. In ambulatory patients, office treatments are usually given three to five times daily at three or four hour intervals. Medication may be continued during the night by patients having the apparatus at home. In conditions involving local accumulations of pus it may be advisable to reinforce the inhalations by injections into the involved area, as in empyema. A nose and throat spray containing 500 units per cubic centimeter is sometimes used at home.

The technic of inhalation consists in placing the mouthpiece of the nebulizer in the mouth or nose and inhaling slowly and deeply, then holding the breath for several seconds to permit deposition of the penicillin particles and to prevent its loss during expiration, and then exhaling. Since the flow of oxygen passes out through the open arm of the Y tube, little oxygen enters the nebulizer until the finger is placed on this arm. The actions of breathing and diverting oxygen into the nebulizer are synchronized. With the nebulizer well within the mouth and the lungs empty, a finger of the nurse or patient is placed on the Y tube opening (thus starting immediate nebulization) and the patient at the same time begins a slow inspiration. Before inspiration is quite complete, the finger is removed from the Y tube, inspiration is completed and held for several seconds, and then expiration is allowed. With this technic little or no vapor can be seen on exhalation. Some patients cannot breathe deeply, but holding the breath will help deposit penicillin in the respiratory tissues. Part of the penicillin solution is also inhaled through the nose; the side of the nose not in use must be closed by finger pressure. The method of inhalation is readily learned by patients and can be carried out unattended save for preliminary instruction. Children as young as 2 years have been successfully given courses of inhalation.

7. Barach, Alvan L.: Personal communication to the author.

8. Schenley Laboratories, E. R. Squibb & Sons and Winthrop Chemical Company, Inc., provided the penicillin.

A modification of this technic consists in attaching a positive pressure oxygen mask to the nebulizer containing penicillin solution. This may be utilized routinely for babies, or for adults for whom the continuous inhalation of oxygen is also desired to prevent pulmonary edema.

The blood concentration can be maintained at any desired level. Barach found blood concentrations as high as 0.4 unit per cubic centimeter using a single inhalation of 100,000 units. Continuous inhalation would therefore seem to be an adequate substitute for the unpleasant continuous intravenous drip method of administration. The blood concentration may be maintained at an effective level by varying the strength of the penicillin solution to be nebulized and the rate of nebulization.

Penicillin may also be nebulized through a catheter directly into infected antrums or sphenoid sinuses after preliminary evacuation and irrigation. For this purpose the upper opening of the nebulizer must be closed by a cork or the finger. No irritation is caused by an aerosol of a solution containing 20,000 units of penicillin per cubic centimeter.

PROCEDURE

Penicillin therapy should be considered as only one factor in the general treatment of the patient. Most penicillin failures, aside from its use against nonsusceptible organisms, occur when the physician fails to recognize and treat such conditions as medical shock, diabetes mellitus, pernicious anemia, achylia gastrica, severe or even mild nutritional failures due to prolonged malnutrition or anorexia and vomiting, congenital conditions leading to rickets or conditions of the gallbladder and bile ducts causing depletion of the bile-soluble vitamins, and allergies due to pollens, foods and other irritants. Penicillin has been found to act more effectively in patients who are in or are brought into a state of adequate nutrition. Therefore supplementary treatment with various vitamins and crude liver extract (Campolon) is often employed.⁹

The procedure in this investigation has been to treat all underlying factors by standard available methods along with aerosol penicillin. Before beginning treatment a thorough physical examination is made. Wherever possible, cultures¹⁰ are taken from the nose, throat and sputum and cultured in nutrient-blood broth and mouse peritoneum. Pneumococci are typed by the direct method and hemolytic streptococci¹¹ by the Swift-Wilson-Lancefield technic. Determinations of the blood count, hemoglobin and erythrocyte sedimentation rate and routine urinalysis are usually carried out. Psychosomatic evaluation of the patient is important. Roentgenograms of the lungs and sinuses are obtained when indicated. In many cases special tests such as those for pollens, danders, feathers and house dust are required, and nonallergic diets must be provided to eliminate food allergies. Electrocardiograms, renal and liver function tests as well as chemical examination of the blood and urine may be necessary. Foci of infection, such as bad teeth and useless tonsils, should be removed.

9. Claassen (in Harvey Lectures, 1941-1943, Lancaster, Pa., Science Press, 1943, vol. 38, p. 37.) reported that patients with chronic infections have very low levels of plasma vitamin A, and conversely that the resistance factors of the host are lowered in any condition in which the vitamin A saturation of the liver, plasma and tissues is depleted. These observations have been confirmed by other investigators.

10. Eli Gardiner, Ph.D., aided materially in the bacteriologic procedures and carried out the streptococcus typing.

11. E. R. Squibb & Sons supplied the hemolytic streptococcus typing serums.

TYPES OF CASES SUITABLE FOR AEROSOL THERAPY

Over 200 patients with various upper respiratory conditions, or manifesting allergic reactions to an upper respiratory infection, have been treated with aerosol penicillin. Since a full report of these highly diversified cases would not be practical for presentation at one time, only the more common manifestations of upper respiratory infections are reported here. Since it may be of interest to indicate the variety of cases successfully treated by aerosol penicillin, the following classification is presented. It must be borne in mind that such bizarre complaints as migraine, eczema, rosacea, duodenal pain, allergic colitis, extreme fatigue and even mild psychoneurotic symptoms may in fact be either due to, or aggravated by, allergy to the presence of a mild chronic or acute upper respiratory infection.

I. Acute primary invasions of the respiratory tissues with and without pneumonitis:

- A. Pneumococcus types.
- B. Hemolytic streptococcus and staphylococcus types.
- C. Virus types with secondary invasions of hemolytic streptococci and staphylococci and the nonhemolytic streptococcus MG group.

II. Persistent bacterial infections of the upper respiratory tract due to pneumococci (thirty-five types), hemolytic streptococci (forty types) and staphylococci, with acute pneumonic episodes without allergic manifestations.

III. Persistent bacterial infections of the upper respiratory tract which develop into bacterial allergies in the constitutionally nonallergic patient.

IV. Upper respiratory bacterial infections which develop into bacterial allergies in individuals who have an allergic type of constitution in combination with other extrinsic allergies:

- A. Sinobronchitis.
- B. Eczema.
- C. Asthma.
- D. Migraine:
 1. With headache as the predominant symptom.
 2. With hemicrania and simulated trifacial neuralgia, with or without biliary viscerospasm.
 3. Intestinal crises without headache.
 4. Psychotic or psychosomatic types.

V. Chronic upper respiratory bacterial infections with acute fatigue persisting for years in allergic and nonallergic subjects.

VI. Acute and chronic upper respiratory bacterial infections which lead to glomerulonephritis and hypertension, sinusitis with nephrosis, and myocarditis with and without hypertension.

PNEUMONITIS

The use of aerosol penicillin in the treatment of pneumonitis is entirely logical, since it brings the drug into very close contact with the infecting organisms. It is true, of course, that penicillin by parenteral routes has proved very effective in pneumonitis due to many susceptible bacteria. However, the applicability of aerosol penicillin to home use without trained assistance is of definite advantage, in addition to the fact that the highest concentration of penicillin is attained in the diseased tissues. The usual treatment of pneumonitis in the adult consists in the inhalation of 50,000 units every three or four hours or a continuous inhalation of nebulized penicillin through the Barach positive pressure oxygen mask. In severe cases a combination of aerosol and parenteral penicillin has been found more effective, inhalations and injections being given alternately at two hour intervals. Although interstitial virus pneumonitis does not in itself respond to penicillin, the use of positive pressure oxygen inhalation helps prevent pulmonary edema, and penicillin eradicates the secondary invaders, pneumococci, hemolytic streptococci and hemolytic

staphylococci, which are usually considered to be the actual cause of death in virus pneumonitis.¹² The course of the disease is shortened and disability is less severe.

It is advisable to take cultures of the sputum and nasopharynx to determine the infecting organism before penicillin therapy is started. Certain bacteria, such as *Hemophilus influenzae* (Pfeiffer's bacillus) and some strains of *Staphylococcus aureus*, are resistant to the action of penicillin but may respond to sulfonamides. The amount of penicillin required in pneumonitis depends to some extent on the infecting agent. Pneumococci are more sensitive on the whole than streptococci or staphylococci; the latter often require very large doses.

Over 30 cases of pneumonitis due to various organisms have been successfully treated with aerosol penicillin alone or in conjunction with parenteral penicillin. Examples of acute and chronic pneumonitis are given:

Acute pneumonitis. M. McG., a boy aged 14 years, was brought to the office after being sent home from boarding school. He was nervous, "jittery" and apprehensive and had a dry irritating cough. His temperature was 102 F. Physical examination showed moderate diffuse pharyngitis and very little postnasal drip or drainage from the sinuses. There was a moderate amount of dullness over the right lower lobe posteriorly and many fine moist rales. The leukocyte count was 28,000, 85 per cent polymorphonuclears, the sedimentation rate was increased, and the hemoglobin was 17.5 mg. per hundred cubic centimeters. Nasopharyngeal cultures and sputum were secured for study; these subsequently showed pneumococcus type XX. He was given an inhalation of 40,000 units of penicillin and taken home. Three hours later when he returned for another treatment he was much improved. Four inhalations were given that day and one intramuscular injection of 25,000 units at 2 a. m. On the second day the patient felt so well that he wanted to walk home. Treatment was continued for a week. The chest signs disappeared completely by the third day; he was lively and had lost all nervousness and apprehension. During the next two weeks an inhalation was given in the morning and evening. Three days after penicillin was stopped no pneumococci could be found by culture.

This boy was seen at the onset of acute pneumococcal pneumonitis. Early diagnosis and aerosol penicillin treatment were responsible for checking the spread of infection at once. Moreover, the boy was in an excellent frame of mind after the first day and was up and about most of the time. This immediate response and relative feeling of well-being are characteristic of aerosol penicillin therapy in pneumonitis and have been noted repeatedly. In fact, patients can be made to understand only with difficulty how ill they were or might have been.

Pneumonitis with allergies to persistent pneumococcal infection. H. S., a man aged 45, was first seen with pneumonitis. The leukocyte count was 12,000, 75 per cent polymorphonuclears, and the sedimentation rate (Westergren) 38 mm. per hour. Type VII pneumococcus was demonstrated by direct typing. After treatment for three weeks with 5 Gm. of sulfadiazine daily and frequent injections of crude liver extract, the patient still had disabling symptoms consisting of profuse sweating on exertion, nervousness, attacks of acute abdominal pain and occasional loose watery stools. Most of these symptoms, which persisted for two months, could be classified as allergic reactions to the persistent type VII pneumococcus infection. Roentgenograms revealed resolving pneumonitis at the apex of the right lung. No extrinsic allergies could be found.

When aerosol penicillin became available, the chronic pneumococcal infection was treated with aerosol penicillin, 20,000 units

four times a day for three days, followed by 30,000 units once a day for a week while at work. After the first four inhalations the patient felt well and his symptoms appeared to be eliminated. The cultures were negative after treatment was stopped. He has continued in excellent health.

It is apparent that in this case aerosol penicillin cured a chronic pneumococcal infection that was resistant to sulfadiazine. Had the aerosol penicillin technique been available earlier, this patient might have been spared months of disability.

It may be of interest to note that, in the epidemic of an unclassified virus disease of the upper respiratory tract during the late winter months, aerosol penicillin was used to good effect. While the virus infection itself was probably not influenced by the drug, the patients frequently were definitely benefited because secondary bacterial infections did not arise to complicate the original disease. Many patients appeared to be well after treatment for one or two days although penicillin was continued for about five days. Perhaps one factor in the rapid recoveries was the general feeling of well being and the increased appetite which commonly accompany aerosol penicillin therapy. Similarly the duration of colds has been repeatedly shortened because of the elimination of secondary bacterial invasions. This was noted especially in patients who usually develop a heavy cough with much sputum a few days after the first symptoms of the cold appear.

TONSILLITIS, SINUSITIS AND SINOBRONCHITIS

Tonsillitis, sinusitis and sinobronchitis are three conditions forming a rather large proportion of cases in any general practice, particularly in the New York City area. Sulfonamides have all too often been of little value, no matter how freely they have been used. As far as parenteral penicillin therapy is concerned, acute sinusitis has been reported to yield to penicillin fairly regularly, but chronic tonsillitis and chronic sinusitis have all too often resisted its action;¹³ administration locally by drops, sprays and irrigations may be of limited value.¹⁴ Similarly the results of parenteral penicillin therapy in sinobronchitis have not been uniformly satisfactory. Experience with aerosol penicillin has, however, been far more encouraging, perhaps because the drug is deposited at the sites of infection.

It is important in treating sinusitis to precede the use of aerosol penicillin with application of a vasoconstrictor in the form of drops or a spray in the nose. For the treatment of sinusitis the nebulizer is inserted into the nares through which penicillin solution is inhaled. Often it has been found advisable to continue single daily prophylactic inhalations for a week or so after the infection is apparently controlled. A penicillin nose spray is frequently employed in the evening at home during the acute phase. In some cases of chronic suppuration of the sphenoids or antrums it is necessary to wash out the pus by catheter and then introduce 20,000 units of penicillin mist through the catheter. The mist is much less irritating than a 20,000 unit solution of penicillin and far more efficient than a solution of 250 units per cubic centimeter. If the nasal structure does not cause too much anatomic blockage, aerosol penicillin readily penetrates into the ethmoid cells after shrinkage with praline. When polyps are present, aerosol penicillin acts better after their removal.

13. Putney, F. J.: *Uses of Penicillin in Diseases of the Nose and Throat*, J. A. M. A. 126: 620 (Nov. 4) 1944.

12. MacCallum, W. G., and Dochez, A. R.: Personal communication to the author. Cecil, R. L.: *A Textbook of Medicine*, ed. 6, Philadelphia, W. B. Saunders Company, 1943.

14. Woern, W. H.: *Penicillin in Ear, Nose and Throat*, Arizona Med. 2: 33 (Jan.) 1945. Hauser, I. J., and Work, W. P.: *Treatment of Sinusitis with Penicillin*, Arch. Otolaryng. 41: 161 (March) 1945.

Tonsillitis. L. B., a man aged 32, was first seen at the office on February 23 complaining of acute epigastric pain which had been treated unsuccessfully for five weeks by antacids and a Sippy diet. He had a history of indigestion for years and repeated attacks of tonsillitis, the latest three months previously. The patient was obviously suffering acute pain, probably due to pylorospasm. Tenderness was present only over the epigastrium. The tonsils were enlarged, and purulent exudate could be expressed. Other abnormal findings were a blood pressure of 150/100 lying and 120/80 standing; a leukocyte count of 14,000 with 78 per cent polymorphonuclears; sedimentation rate (Westergren) 28 mm. in one hour. A throat culture taken at this time subsequently showed a nonhemolytic streptococcus and *Streptococcus viridans*. At later visits the electrocardiogram was normal; roentgenographic examination of the heart and lungs was negative. The first attempt to obtain roentgenograms of the gastrointestinal tract failed because duodenal contractions prevented the passage of barium. Three days later, after an injection of isonipecaine (Demerol), barium passed into the duodenum without difficulty. No abnormality could be visualized. The gastric analysis after histamine stimulation was slightly above normal.

Immediate relief of the severe pain was obtained with 50 mg. of isonipecaine given hypodermically. This was indicative, since isonipecaine relieves vagotonia and viscerospasm similarly to its effect on the vagotonia of asthma. A tentative diagnosis of gastrointestinal allergy to the tonsillar infection warranted a course of aerosol penicillin, 30,000 units every four hours. After the third inhalation, the pain from viscerospasm was completely absent. On the third day the patient had a single inhalation and then went to work, not returning until 8 o'clock in the evening. Later that night severe pains developed in the epigastrium, left shoulder and arm, intercostal muscles and left pectoralis muscle simulating angina pectoris. The leukocyte count and sedimentation rate were normal but a throat culture was later reported positive for pneumococcus type III. A course of penicillin was given intramuscularly, 25,000 units every four hours. After three days all muscular pain had disappeared, but the tonsils were still enlarged and contained purulent exudate. Aerosol penicillin was then given four times daily for three days, at which time the tonsils seemed to have shrunk to small masses of scar tissue. Two days after withdrawal of penicillin, all symptoms returned and the culture again showed pneumococcus type III. A final course of aerosol penicillin was given at home for seven days, with relief of all symptoms. Cultures were negative two days and one month after the end of treatment. The electrocardiogram, leukocyte count and sedimentation rate were normal. Because the tonsils do not look really healthy and are probably useless, tonsillectomy has been advised.

This involved case history is given rather fully to illustrate two points: First, allergic symptoms simulating viscerospasm and, later, angina pectoris were completely relieved by apparent cure of a type III pneumococcus infection of the tonsils. Second, aerosol penicillin succeeded in eliminating pneumococci from the tonsils, whereas large amounts of penicillin given intramuscularly failed to do so; moreover, the tonsils were smaller and more nearly normal after aerosol penicillin but remained large after parenteral therapy. Other patients with allergic disturbances due to chronic tonsillitis preferred to undergo tonsillectomy, preceded and followed by aerosol penicillin for three and four days, respectively. The course of treatment is shorter and chances of relapse much less when the tonsils are not retained. Surgical removal of foci of infection, such as the tonsils, is much less hazardous, and persistent infections are more frequently eliminated when penicillin treatment precedes and follows the operation.

Acute sinusitis. C. R., a woman aged 26, had her tonsils removed in infancy. At the age of 20 an attack of sinobronchitis persisted for several months. Roentgenograms showed a mild pneumonitis, which resolved during a month in Florida. Recently the patient had an acute attack of sinusitis involving both antrums and ethmoids; cultures showed nonhemolytic

streptococci, *Staphylococcus albus* and pneumococcus type VI. The infection was cured in two days with 200,000 units of penicillin. Findings were negative five months later.

It seems possible, in view of the previous history of sinobronchitis, that a recurrence of that condition was prevented by immediate treatment of the sinusitis at the onset of pain.

Chronic sinobronchitis. D. T., a woman aged 32, had lost many weeks of work for several years because of attacks of relapsing sinobronchitis lasting two or three weeks. In the latest episode, slight fever, pronounced fatigue and a productive cough were present. Sputum and throat cultures revealed only a nonhemolytic streptococcus; roentgenograms of the chest were negative for tuberculosis and bronchiectasis. Although the patient was unaware of allergic symptoms, skin tests revealed positive reactions to feathers and house dust. Fatigue and cough disappeared, with a high vitamin intake and three inhalations daily of 40,000 units of penicillin for five days, in combination with a penicillin nose spray of 250 units per cubic centimeter at night. The productive cough recurred in mild degree after the patient fluffed up some feather pillows, but it was again controlled almost completely with a few treatments of aerosol penicillin. As a prophylactic measure the patient continued taking a single daily inhalation for several weeks, since she was constantly exposed to upper respiratory infections. Immunization for the extrinsic allergies has been started.

The rapid action of aerosol penicillin in sinobronchitis is illustrated by this patient, who was able to return to work feeling well after five days' treatment, as contrasted with the protracted course of previous attacks.

At least 40 cases of sinusitis and sinobronchitis have been successfully treated with aerosol penicillin. Many cases have been complicated, as in the case of D. T., by extrinsic allergies which in themselves may produce respiratory symptoms. Zinsser,¹⁵ among others, has pointed out that when a chronic bacterial infection is eliminated the hyperergic state of the individual is diminished and food, pollen and other antigens cause few or no symptoms. In other words, the presence of a bacterial infection accentuates the allergic reactions to extraneous antigens.

ACUTE PHARYNGITIS ASSOCIATED WITH GASTRO-INTESTINAL SYMPTOMS

Patients are often seen with complaints localized in various portions of the body for which no definite etiology is easily discernible. Here the necessity of a thorough physical examination is more than ever of importance. Gastrointestinal upsets often fall into this category. Intrinsic bacterial allergy, heretofore a diagnosis which all too infrequently has entered into consideration, is receiving increasing recognition in the causation of obscure complaints referred to the gastrointestinal tract, the skin, the circulatory system and the respiratory apparatus. Recently it has been found that gastrointestinal complaints may be traced more or less directly to an infection of the upper respiratory tract.

Fourteen infants were seen primarily because of gastrointestinal disorders. These children had symptoms ranging from anorexia to vomiting, with or without loose stools loaded with mucus; in 2 cases there were green slimy stools containing undigested food and fats; persistent vomiting and constipation occurred in 2 cases, and in 2 other infants there were frequent very watery stools. Most of the babies were moderately sick and cried intermittently. Several had so-called colic, without other signs. Physical examination was generally negative except for moderate dehydration and, in all cases,

15. Zinsser, Hans. Resistance to Infectious Diseases, ed. 4, New York, Macmillan Company, 1931.

diffuse pharyngitis. Temperatures were never over 101 F. The white blood cell count varied from 12,000 leukocytes with 20 per cent polymorphonuclears to 25,000 leukocytes with 85 per cent polymorphonuclears. In 1 case with a hemolytic streptococcus throat infection the leukocyte count was 8,000, polymorphonuclears 4 per cent; after two treatments the polymorphonuclears increased to 40 per cent. The sedimentation rates ranged from 3 to 6 mm. per hour (Landau). The organisms identified by culture were hemolytic streptococcus, *Neisseria catarrhalis*, *Staphylococcus aureus* and *Staphylococcus albus*; in 1 case pneumococcus type XXXII was isolated.

Because of the pharyngitis all infants were treated with penicillin inhalations through the Barach-Eckman oxygen mask. After the first inhalation of 10,000 units the babies were more interested in eating, and the gastrointestinal symptoms were relieved. Second and third inhalations of 5,000 units were given to insure improvement or cure of vomiting and abnormal stools. Cultures of the throat were negative after therapy. More prolonged follow-up treatment was carried out when the infecting organism was a hemolytic streptococcus. However, in the normal infant very little penicillin treatment is usually required to eliminate symptoms arising from mild bacterial invasions of the upper respiratory tract.

A number of adults have been seen in whom treatment of a mild or chronic pharyngitis resulted in the relief of severe nausea and vomiting, acute gastric pain, migraine, hypertension and a Ménière-like syndrome. A report of these cases will be presented at a later date.

Pneumococcal pharyngitis and sinusitis associated with hyperemesis gravidarum. L. W., a woman aged 30, was depleted from almost continuous hyperemesis gravidarum when first seen in the fourth month of pregnancy. The only abnormal findings were a postnasal drip, mild pharyngitis and a leukocyte count of 13,000, with 76 per cent polymorphonuclears. Pneumococcus type XIII was found in throat cultures. The prolonged depletion was treated with parenteral injections of crude liver extract together with vitamins of the B complex and A, D, K and C. Because of the upper respiratory tract infection, 10,000 units of penicillin was added to the intramuscular injection of vitamins A and D in oil. After this treatment in the morning the patient ate a large meal at noon. In the evening she was troubled by anorexia and abdominal pain with emesis.

Since it appeared that bacterial allergy was a predominant factor, operating through the mechanism of intestinal migraine, ergotamine tartrate (Ergotrate) was given parenterally with temporary relief of symptoms. The patient was then given two aerosol penicillin treatments daily, and emesis stopped. The treatments were reduced to one daily, and on the following day vomiting again occurred in the evening. Complete relief of symptoms, without relapse, was finally obtained by four penicillin inhalations daily for five days. Whatever the actual mechanism of hyperemesis gravidarum in this case, it seems likely that there was an intrinsic allergy to pneumococcus type XIII. Complete remission of nausea and vomiting was attained with the control of pharyngitis and sinusitis.

INTRINSIC BRONCHIAL ASTHMA

The concept of intrinsic bronchial asthma, as distinguished from extrinsic asthma, has recently entered more frequently into consideration in the differential diagnosis of asthma.¹⁶ The prognosis of the disease is often very poor, and many patients suffering from the condition actually depend on epinephrine for their continued survival. The theory that a chronic bacterial infection in the upper respiratory tract is the causative

factor in intrinsic asthma is gaining acceptance. Some success has attended the treatment of bronchial asthma with nebulized solutions of sulfathiazole,¹⁷ often in combination with adrenergic bronchial dilators.

The earliest report on the application of penicillin in intrinsic bacterial asthma is that of Schonwald and Deppe,¹⁸ who used the drug with good results, although only very small and infrequent doses were given. Hampton and his co-workers¹⁹ studied 9 patients with asthma of many years' duration, of which group 8 patients reacted positively to extracts of common pollens, inhalants and foods. Elimination and injection therapy failed to alter the asthmatic state in any case. It was then assumed that the etiology was a primary bronchial infection (bacterial allergy). The patients received a course of at least 500,000 units of penicillin intramuscularly and later 500,000 units intratracheally by means of a pressure spray through a curved cannula extending to the base of the protruded tongue. There was slight clinical improvement in 4 cases, but not enough to indicate that penicillin offered any real advantages. It may be argued that with these methods of giving penicillin the drug did not reach the bacteria present in the respiratory tissues and excretions in sufficiently high concentrations to be effective. The droplets produced by the pressure spray were probably of too large a size to penetrate into the bronchioles.

Barach,¹ on the other hand, reported striking success in at least 2 cases of bronchial asthma, 1 of eight months' and 1 of twenty-five years' duration. Other patients, in whom emphysema, chronic bronchitis or both were also present, responded at least temporarily. It should be noted that these were all advanced cases, and aerosol penicillin was given arbitrarily for only ten days at most in an attempt to evaluate the technic. It is entirely possible that treatment over a longer period of time would cure more cases of severe bronchial asthma.

My experience has been more encouraging than that of Barach, probably because the cases treated had not progressed to the severe intractable stage with definite tissue change present in Barach's series. Aerosol penicillin has been very successful in 25 cases of bronchial asthma, a number of which also showed extrinsic allergies to foods, pollens or danders. While the disease may appear to be cured by a five day course of aerosol penicillin, it is advisable to continue therapy in diminishing amounts and then in single daily or weekly prophylactic doses for a number of weeks. Two cases are given here:

W. H., a boy aged 5 years, had relapsing episodes of sinusitis and bronchial asthma for three years. These attacks followed an acute upper respiratory infection with pyelonephritis and urinary frequency at the age of 2 years; leukocytosis was always present during these episodes. Throat cultures revealed hemolytic streptococcus (not typed) and pneumococcus type II. All skin tests for common irritants were negative. Penicillin was first used parenterally, 10,000 units every four hours for seven days, for one of these episodes. Temporary relief was followed promptly by a relapse. This was treated with a second course of parenteral penicillin, and relapse again occurred promptly. Finally aerosol penicillin was given, with complete relief of all symptoms, and no asthmatic symptoms have appeared in seven months. Several upper respiratory infections were aborted immediately by a few penicillin inhalations.

17. Applebaum, I. L.: The Treatment of Bronchial Lesions by the Inhalation of Nebulized Solution of Sodium Sulfathiazole, *Dis. of Chest* 10: 415 (Sept.-Oct.) 1944.

18. Schonwald, Philipp, and Deppe, E. F.: Penicillium Antibiotic in the Treatment of Intrinsic Allergies, *Northwest Med.* 44: 10 (Jan.) 1945.

19. Hampton, S. F.; Wine, M. B.; Allen, Wendell; Thompson, C. S., and Starr, M. P.: The Clinical Use of Penicillin, *J. A. M. A.* 127: 1108 (April 23) 1945.

16. Cohen, M. B.: Bronchial Asthma: Classification Based on Etiological and Pathological Factors, *Ann. Int. Med.* 20: 590 (April) 1944.

M. G., a girl aged 10 years, had practically continuous episodes of sinobronchitis every winter to such an extent that she was never able to go to school. This condition had been present for eight years. She had never been very asthmatic, but the cough was very annoying and persistent. Ragweed hay fever occurred every fall. When first seen in September 1944 she had an upper respiratory infection involving both antrums and ethmoids, diffuse bronchitis and asthma. Many moist rales and rhonchi were heard in both lungs. There were no changes in breath sounds and no dullness. Roentgenograms revealed no signs of tuberculosis, pulmonary consolidation or bronchiectasis. She was found to be allergic to ragweed, house dust and feathers.

Initial treatment, 200,000 units of penicillin in doses of 20,000 units every four hours intramuscularly, was followed by a well defined general improvement, but a week later there was a relapse. The antrums were black to transillumination, and the condition of the lungs was about the same as when she was first seen. Penicillin therapy, 20,000 units four times a day intramuscularly, combined with a penicillin nose spray of 500 units per cubic centimeter, and sulfadiazine 0.5 Gm. daily, were given for seven days and then reduced to 20,000 units intramuscularly twice a day. It was two weeks before the antrums became clear to transillumination. The lung signs finally cleared up only when aerosol penicillin, 20,000 units four times a day, was given for five days. During all this time the child went to school every day for the first time in her life. She was treated from September to January more or less intensively and has felt well since treatment was instituted. From January to March she received one dose of aerosol penicillin once a week, 25,000 units, as a prophylactic measure. On March 8 she contracted what seemed to be a virus infection. The only bacteria detected on culture of the sputum and nasopharynx were nonhemolytic streptococci. Penicillin 20,000 units every four hours was administered for a week, and no sinusitis or bronchitis developed. Following this she had three days of aerosol penicillin, 25,000 units three times a day. In April she had a mild case of mumps. In May she had a slight cold with no sign of bronchial infection. At the present time she is in very good health and is getting ragweed and house dust immunizations twice weekly.

A pronounced side effect of combined aerosol penicillin and desensitization therapy for allergies, observed in this patient, will now be described.

SIDE EFFECTS OF AEROSOL PENICILLIN

A hitherto unreported side effect of penicillin therapy occurred in patient M. G. and in 1 other. If an aerosol penicillin treatment is given simultaneously or within a few hours of a pollen immunization or vaccine, severe allergic reactions develop; these are characterized by acute abdominal pain and urticaria, severe nervousness, restlessness and angioneurotic edema. Isonipicaine 50 mg., given either orally or parenterally, controlled the reaction within a few minutes. Aerosol penicillin alone never caused the reaction. The only other allergic reaction to penicillin was mild urticaria, which was relieved by Torantil (histaminase) within several hours. This occurred in 2 extrinsically allergic patients with sinusitis and is due to the pigment or other impurities present in commercial penicillin.

A few patients of Barach¹ complained of soreness under the sternum and an irritated throat after treatment with aerosol penicillin for a few days. Coughing sometimes was troublesome. Hampton¹⁹ was forced to discontinue the use of an intratracheal penicillin spray in 1 patient with intrinsic bacterial asthma because an attack was precipitated with each attempted treatment. The occasional coughing observed in my cases was not troublesome. It was a normal physiologic manifestation of the disease rather than a reaction to aerosol penicillin per se.

On several occasions patients mentioned the development of a sore throat sometime during the course of aerosol penicillin. The throats looked red and edematous. However, despite the continuation of aerosol penicillin, the throats became normal within the course of a few days. During the time this series of cases was treated, various unclassified virus diseases were prevalent in the community. It is felt that most patients complaining of sore throats had acquired an intercurrent virus infection or a highly resistant hemolytic staphylococcal infection.

The penicillin nose spray sometimes caused slight irritation, but in the same patients aerosol penicillin in much stronger concentration was nonirritating.

COMMENT

The average physician in general practice is not yet making full use of the potentialities of penicillin, probably because of the present inherent need of frequent and regular administration and its concomitant difficulties. In life endangering infections the drawbacks are minimized by hospitalization, although the inconvenience and dislike of frequent injections remain. The administration of penicillin by inhalation is suggested as a valuable substitute for the usual technic. It is an adaptable method, useful in the home by untrained persons and in the office. It can be utilized for continuous or intermittent administration of penicillin in severe as well as in less dangerous chronic infections, in which from three to five treatments during the day apparently are sufficient to effect removal of the infection. As demonstrated in the cases reported here, aerosol penicillin, as compared with parenteral penicillin, is usually more effective in the treatment of chronic and acute upper respiratory infections, with or without other systemic manifestations. The rapid clinical improvement in such stubborn conditions as intrinsic bacterial asthma is notable and encourages one to hope that at last a promising therapeutic weapon is available for that intractable condition. Likewise the amelioration and often the elimination of such manifestations as migraine, hypertension, chronic fatigue, gastrointestinal disturbances and fibromyositis, with the removal of chronic bacterial infections of the upper respiratory tract by aerosol penicillin, are startling and almost must be observed to be believed. The elimination of such bizarre concomitants of upper respiratory infection is difficult to explain unless the possibility of allergic reactions to a bacterial infection is entertained. Only a beginning at exploration of the widely varied ramifications of bacterial hypersensitivity has been made. It is entirely possible that penicillin may be a powerful and logical weapon in attacking this problem.

It must be emphasized that aerosol penicillin was repeatedly found to control infections of the upper respiratory tract which were not cured by parenteral penicillin or relapsed after its use. Plummer,²⁰ in a study of the treatment of hemolytic streptococcal pharyngitis and tonsillitis with parenteral penicillin, found that the organisms again could be cultured from the nasopharynx after cessation of treatment and relapse occurred within a few days. This occurred in 4 out of 9 patients treated for fewer than four days, in none treated for ten days. Such relapses did not occur in patients given aerosol penicillin. The use of intra-

20. Plummer, Norman; Duerschner, Dorothy R.; Warren, Harold D.; Rogliano, Francis T., and Sloan, Ruell A.: Penicillin Therapy in Hemolytic Streptococcal Pharyngitis and Tonsillitis, *J. A. M. A.* 127: 369 (Feb. 17) 1945.

tracheal sprays of penicillin, as reported by Hampton,¹⁹ was also far less effective than aerosol penicillin in bronchial asthma. From these and other data²¹ which have appeared since this report was submitted it is apparent that a strong case can be built up for the effectiveness of the local deposition of penicillin in the upper respiratory tract by inhalation of an aerosol.

Aerosol penicillin is not claimed to be a cure-all. It failed to influence the course of rheumatic fever, rheumatoid arthritis and other conditions in which penicillin has generally been ineffective. It has, however, surpassed other known technics in the persistent upper respiratory infections that cause so much chronic illness and disability and offer such a challenge to the physician. On the basis of its promising results, the method deserves a wider trial so that its value can be more accurately determined, especially when other methods are used to increase the individual's resistance to reinfection.

SUMMARY

The disabilities of more than 200 patients have been relieved or improved by adequate doses of aerosol penicillin, a technic whereby a highly concentrated solution of penicillin is inhaled as a mist. The cases fall into groups, the common denominator of which is a bacterial invasion of the respiratory tissues, including the paranasal sinuses, often associated with underlying disturbances. Although the disabilities are not all serious, they have produced prolonged periods of inactivity and loss of work. Many are of serious significance, as for example bacterial asthma, in which the mortality rate is high.

The conditions treated successfully include acute and relapsing pneumonitis due to various cocci; tonsillitis, sinusitis and sinobronchitis; pharyngitis with gastrointestinal manifestations, and intrinsic bacterial asthma. Several other manifestations of bacterial allergy (migraine, hypertension, eczema, rosacea, colitis, extreme fatigue and even mild psychoneurosis) associated with upper respiratory infections were treated with encouraging results.

The advantages of aerosol penicillin over parenteral administration, especially when respiratory invasions are under treatment, are many and include ease and adaptability of administration in the home or office through a mouthpiece or oxygen mask, relative cheapness, and local and systemic effectiveness. The inhalation of penicillin mist in concentrated doses introduces the therapeutic agent directly into the site of bacterial invasion and produces a very high local concentration. Moreover, a constant antibiotic blood level of penicillin may be produced by continuous penicillin inhalation through a positive pressure oxygen mask.

In addition to specific treatment of the bacterial invasion, management of the underlying factors is imperative. Parenteral crude liver extract and vitamin therapy are still important adjuncts to the specific treatment of most types of infection. Combined therapy has been effective and readily managed in general practice.

A previously unreported side effect of penicillin was observed in 2 allergic patients.

The aerosol penicillin technic is offered as a valuable new method for the general practitioner.

74 Ascan Avenue.

PENICILLIN X

COMPARISON WITH PENICILLIN G WITH RESPECT
TO SENSITIVITY OF PATHOGENIC ORGANISMS
AND SERUM LEVELS

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Several forms of penicillin have been identified in cultures of *Penicillium notatum*. Three of these, known as penicillin F, G and X in this country and as penicillin I, II and III respectively in Great Britain, have been isolated in crystalline form.¹ Other active substances have also been described which differ from these three in that they are probably proteins, non-diffusible, active only in the presence of glucose and are effective against gram negative as well as gram positive bacteria. The latter have been variously labeled notatin, penatin, penicillin B and "second factor" but are all closely related or identical.²

Commercial penicillins prepared from deep vat cultures consist almost entirely of penicillin G, but those prepared from shallow surface cultures in flasks may contain appreciable amounts of penicillin X varying up to 20 or 25 per cent.³

The only published paper in which more than mention is made of penicillin X is a brief one by workers of the Food and Drug Administration.⁴ That paper contains a summary of some of its properties and the results of a clinical trial in gonorrhea. When assayed by the cup-plate method, the potency of crystalline penicillin X is appropriately 900 Oxford units per milligram while crystalline penicillin G has a potency of 1,650 units per milligram. These workers found penicillin X to be more effective in vitro against a strain of type A Friedlander's bacillus and a strain of *Bacillus cereus*. They found no difference between penicillin X and commercial penicillin on four strains of *Staphylococcus aureus*, but in preliminary studies the former was found to be three to five times more effective than the latter in protecting mice against 10,000 lethal doses of

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4. Welch, Henry; Putnam, L. E.; Randall, W. A., and Herwick, R. P.: Penicillin X: Successful Treatment of Gonorrhea with a Single Intramuscular Injection, *J. A. M. A.* **126**: 1024 (Dec. 16) 1944.

21. Mutch, N., and Russell, R. E.: Penicillin by Inhalation, *Lancet* **1**: 650 (May 26) 1945. Hagens, E. W.; Karp, Marv., and Farmer, C. J.: Inhalation Method for Penicillin Therapy: Preliminary Report, *Arch. Otolaryng.* **41**: 333 (May) 1945. Olsen, A. M.: Nebulized Penicillin: Preliminary Report of Its Role in the Management of Surgical Bronchiectasis, *Proc. Staff Meet., Mayo Clin.* **20**: 184 (June 13) 1945.

pneumococcus type I. In the treatment of gonorrhea they obtained bacteriologic cures in 64 of 68 cases (94 per cent) with a single intramuscular injection of 25,000 units of penicillin X but only 37 cures in 58 comparable cases (64 per cent) treated with a single intramuscular injection of 25,000 units of commercial penicillin. Moreover, 3 of the patients in whom they failed to obtain a cure with commercial penicillin were cured by a subsequent treatment with a single injection of 25,000 units of penicillin X. Consistently higher blood concentrations of penicillin X, as determined by a serial dilution technic in which *Bacillus subtilis* was used as the test organism, were maintained during the first two hours after an intra-

COMPARISON OF SENSITIVITY OF BACTERIAL STRAINS TO PENICILLIN X AND TO COMMERCIAL PENICILLIN

The tests for sensitivity were done in suitable mediums by the serial dilution method of Rammelkamp and Maxon,⁶ using 0.5 cc. amounts of both culture and penicillin solutions. Pathogenic strains, most of them from recent cases, were used. The staphylococci were all coagulase positive and included F. D. A. No. 209 P, one of those certified for penicillin standardization.¹ Various types were included among the group A streptococci, pneumococci and meningococci. Some of the strains were tested simultaneously with only one lot of each kind of penicillin, while others were tested at the same time with both lots of penicillin X and with

Comparative Sensitivity of Bacterial Strains to Penicillin X and to Commercial Penicillin

Comparative Sensitivities *	Staphylococcus Aureus	Group A Streptococcus	Streptococcus Viridans	Pneumococcus	Gonococcus	Meningococcus	Streptococcus D5†	Total, Excluding Staphylococcus Aureus
More sensitive to X than to G								
8-fold: complete.....	..	2	..	..	2	1	1	6
inhibition.....	..	4	..	..	2	..	3	9
4-fold: complete.....	..	62	..	..	8	9	9	88
inhibition.....	..	45	2	2	9	17	12	87
2-fold: complete.....	3	45	11	10	20	13	19	118
inhibition.....	3	19	8	13	9	2	8	59
Same sensitivity to X and G.....	48	6	10	15	9	1	..	41
More sensitive to G than to X								
2-fold: inhibition.....	8	1	..	2	2	..	1	6
complete.....	10	..	..	..	..	..	..	..
4-fold: inhibition.....	2	..	..	..	..	..	..	..
complete.....	3	..	..	..	..	..	..	..
Totals: Number of tests.....	77	184	31	42	61	43	53	414
Number of strains.....	17	134	10	19	29	12	1	205
Comparisons of 5 lots of G								
Same sensitivity.....	11	15	3	2	3	8	1	32
2-fold: inhibition.....	3	8	2	3	2	1	5	21
complete.....	2	3	..	..	..	..	2	6
4-fold: inhibition.....	1	..	..	1	1	..	..	2
complete.....	..	..	..	..	..	..	..	..
Totals: Number of tests.....	17	26	5	6	6	10	8	61
Number of strains.....	17	26	5	6	6	10	1	54
Two lots of X compared								
More sensitive to lot L								
2-fold: complete.....	2	2	1	1	3	1	1	3
inhibition.....	13	2	5	3	7	3	4	24
complete.....	1	8	2	3	4	5	3	25
4-fold: inhibition.....	2	11	2	3	7	1	3	27
complete.....	..	3	..	1	2	1	..	7
Totals: Number of strains.....	17	26	10	11	26	11	11	95
Number of tests.....	17	26	10	11	22	11	1	81

* Commercial lots are referred to as G. † Not included in the previous columns. Complete = no growth on subculture; Inhibition = no visible growth at 18 hours, growth on subculture. Not included in the table are tests with three strains of *Friedländer's bacillus* and one strain of *Hemophilus influenzae* which were equally resistant to the lots of X and G.

muscular injection, and the penicillin X was excreted into the urine somewhat more slowly than commercial penicillin.

Two preparations, one containing 65 and the other more than 90 per cent of penicillin X, were available for the studies to be reported in this paper.⁵ These studies fall into three categories: (1) Strains of bacteria obtained from clinical cases were tested simultaneously for their sensitivity to these two preparations and to various lots of commercial penicillin, (2) serum levels were compared after intramuscular injections in the same subjects and the levels obtained during therapy with different doses given by intermittent intramuscular injections were also compared, and (3) a preliminary clinical trial was made in a small number of cases mostly of pneumonias and gonococcal infections.

5. These were supplied by the Lederle Laboratories and Cutter Laboratories.

one or more lots of commercial penicillin. The results of all the comparisons are shown in the table.

It should be borne in mind that the standardizations of all penicillin preparations, according to international agreement,¹ is made with certified strains of *Staphylococcus aureus* which have the same sensitivity to penicillin F and G. Different strains of staphylococci, however, are known to vary considerably in their sensitivity to commercial penicillin⁷ and this was shown

6. Rammelkamp, C. H., and Maxon, T.: Resistance of *Staphylococcus aureus* to the Action of Penicillin, *Proc. Soc. Exper. Biol. & Med.* 51: 386 (Dec.) 1942.

7. Abraham, E. P.; Florey, H. W.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G., and Jennings, M. A.: Further Observations on Penicillin, *Lancet* 2: 177 (Aug. 16) 1941. Spink, W. W.; Ferris, V., and Vivino, J. J.: Comparative In Vitro Resistance of *Staphylococcus aureus* to Penicillin and to Sodium Sulfathiazole, *Proc. Soc. Exper. Biol. & Med.* 55: 207 (March) 1944. Garrod, L. P.: The Laboratory Control of Penicillin Treatment, *Brit. M. J.* 1: 528 (April 15) 1944. Rantz, L. A., and Kirby, W. M. M.: The Action of Penicillin on the *Staphylococcus aureus* in Vitro, *J. Immunol.* 48: 335 (June) 1944. Gallardo, E.: Sensitivity of Bacteria from Infected Wounds to Penicillin: II. Results in One Hundred and Twelve Cases, *War Med.* 7: 100 (Feb.) 1945. Rammelkamp and Maxon.⁶

elsewhere to be true for the strains used in this study.⁸ The present comparisons of the sensitivities of these strains of staphylococcus to penicillin X and G show that in the vast majorities of instances they were equally sensitive to X and G, to the two lots of X and to the various lots of G. The differences that were noted were mostly twofold and, interestingly enough, the strains showed greater sensitivity to the commercial preparations more often than to the lots of penicillin X. These findings tend to rule out differences in the standardization as a basis of the differences in the sensitivities noted with the other organisms.

All of the organisms other than the staphylococci were generally more sensitive to penicillin X than to penicillin G. Most of the group A streptococci, gonococci, and meningococci were from two to eight times more sensitive to penicillin X than to penicillin G. Most of the strains of *Streptococcus viridans* and of pneumococcus were twice as sensitive to X as to G. Three strains of Friedlander's bacillus and one of *Hemophilus influenzae* were equally resistant to the two. The significance of these comparisons is emphasized by the fact that when the sensitivity of these strains was tested with different lots of commercial penicillin the results usually agreed, and the differences observed with any two lots favored the one about as often as the other.

The two lots of penicillin X were essentially identical in their effects on the various strains of *Staphylococcus aureus*. Most of the other organisms showed either the same sensitivity to the two lots or a twofold difference, but they were generally more sensitive to lot C than to lot L, the latter containing only 65 per cent of penicillin X.

The standard strain of hemolytic streptococcus, No. 98, which was used for the determinations of serum levels, was included every time that other organisms were tested. The results of all the tests in which the sensitivity of this strain to different lots of penicillin was compared are also shown in the table. They did not differ essentially from the aggregate of the results obtained with the other strains of group A streptococci.

SERUM LEVELS

After Single Doses in the Same Subjects.—Ten convalescent patients were each given single intramuscular injections of 20,000 units of penicillin on two successive days. On the first day 5 of them received penicillin X and the others received commercial penicillin; on the second day each one received the alternate kind of penicillin. Blood was taken at hourly intervals for five hours after each dose, and the levels in the serum were determined by the serial dilution method of Rammelkamp.⁹ Human group O cells were used as an indicator. The same strain of hemolytic streptococcus, No. 98, was used throughout and the serum dilutions were added in 0.2 cc. amounts. The results are shown in chart 1 in terms of the reciprocal of the minimum serum dilution which sterilized 0.5 cc. of the culture. The corresponding concentrations of regular penicillin obtained in control tests with the same strain are also shown.

8 Meade, M.; Ory, E. M.; Wilcox, C., and Finland, M.: Penicillin Sensitivity of Strains of Six Common Pathogens and of *Hemophilus hemolyticus*, *J. Lab & Clin. Med.*, to be published.

9 Rammelkamp, C. H.: A Method of Determining the Concentration of Penicillin in Body Fluids and Exudates, *Proc. Soc. Exper. Biol. & Med.* 51: 95 (Oct.) 1942.

There were appreciable differences in the maximum concentrations obtained and in the persistence of demonstrable amounts of penicillin activity in the serum in the different subjects with each of the preparations used. All received the same lot of commercial penicillin, while two lots of penicillin X were given—lot L to 6 subjects and lot C to 4. The levels obtained after penicillin X were consistently higher than they were in the same subjects after the same dose of regular penicillin. The differences were two to eight fold throughout the period corresponding to that during which regular penicillin was still demonstrable in the serum. In most instances also the penicillin X was found in concentrations of 0.03 unit per cubic centimeter or more for two hours longer than the commercial penicillin could be detected in the same subjects. Of the two preparations of penicillin X, the higher and better sustained levels were obtained with lot C than with lot L.

Levels During Intramuscular Therapy.—The levels of penicillin in the serum during the intervals between intramuscular doses in a number of patients under active treatment with penicillin X on four different

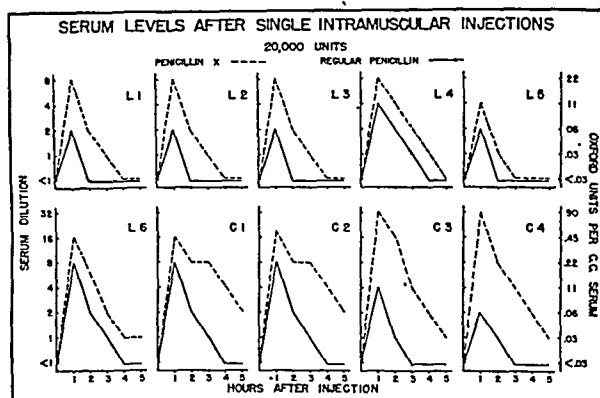


Chart 1.—Serum levels after single intramuscular injections of 20,000 units

dosage schedules are shown in chart 2. As might be expected, the larger doses gave rise to higher and better sustained levels than the smaller ones. A similar chart of serum concentrations obtained in patients under treatment with regular penicillin is given elsewhere¹⁰ and shows similar variations at somewhat lower levels. Comparisons of the average concentrations obtained on two similar dosage schedules of commercial penicillin and penicillin X are shown in chart 3. Values obtained in subjects with cardiac or renal insufficiency were excluded in the computation of these averages since they may be abnormally high.¹⁰ The average levels of penicillin activity in the serum, as measured by the use of streptococcus 98, were always at least twice as high during treatment with penicillin X as they were during treatment with the same doses of regular penicillin.

In chart 3 is also shown a comparison of the average serum levels obtained during the intervals between 10,000 unit doses of penicillin X and between 20,000 unit doses of regular penicillin, each given every three hours. Except at the one-half hour interval the average

10 Ory, E. M.; Meade, M.; Brown, B.; Wilcox, C., and Finland, M.: Penicillin Levels in Serum and in Some Body Fluids During Systemic and Local Therapy, *J. Lab & Clin. Med.*, to be published.

serum levels were slightly higher with the 10,000 unit doses of penicillin X than they were when twice that amount of regular penicillin was given.

CLINICAL OBSERVATIONS

A preliminary clinical trial of the use of penicillin X has been made on 75 patients. The less potent of the two preparations was used in almost all of these cases. Although the results of the studies on the sensitivity of various bacteria and the blood levels observed suggested that, as compared with regular penicillin, smaller doses spaced at longer intervals might give comparable results, no adequate attempt was made to confirm this possibility. The total doses used in most of the present cases, except in some of those of uncomplicated gonorrheal urethritis, were similar to the amounts generally employed with commercial penicillin. These doses were given chiefly for the purpose of obtaining data which could be compared with similar observations in other cases treated with regular penicillin.

Gonococcic Infections.—The difficulty of establishing a dose which would be universally effective in the treatment of gonorrhea has been pointed out recently.¹¹ In the present study 47 cases of uncomplicated acute gonorrheal urethritis were treated with total doses of 50,000 to 100,000 units of penicillin X given in two or three intramuscular injections at three hour intervals except for the 100,000 unit dose, which was given as

one after 75,000 units and the other after 50,000 units. In addition, 7 patients had clinical and bacteriologic cures for two or three weeks and subsequently returned with fresh infections after further admitted exposures to known sources of infection. Some of these reinfections responded with complete cure after smaller doses

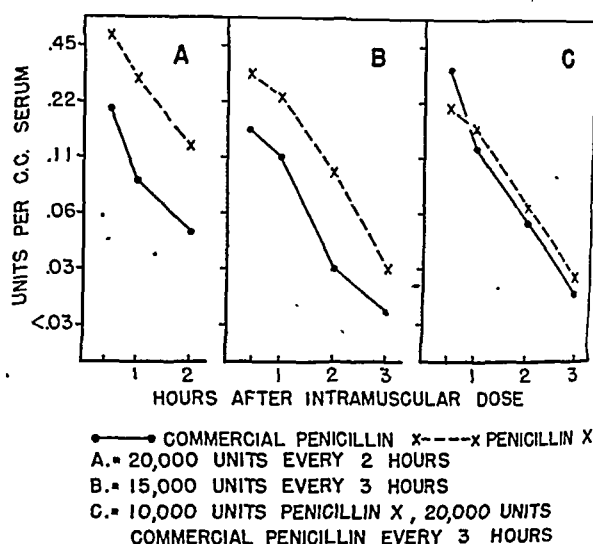


Chart 3.—Comparison of average levels of penicillin activity in the serum of patients under treatment with various doses of commercial penicillin and penicillin X. Each point represents the average of at least ten observations in as many patients without cardiac or renal insufficiency.

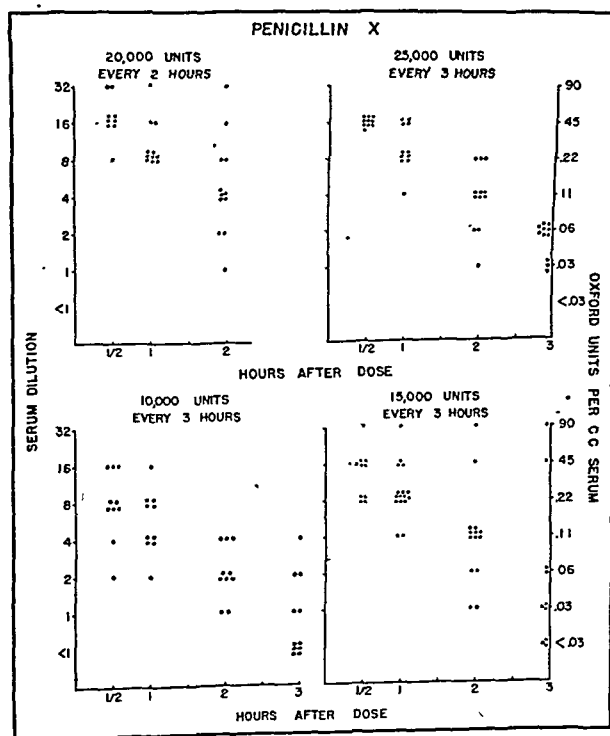


Chart 2.—Serum levels obtained during the intervals between intramuscular injections in different patients under treatment with various doses of penicillin X.

five injections at two hour intervals. A total dose of 75,000 units was used on 23 patients and 50,000 or 60,000 units on 14. There were two definite failures,

11. Lapenta, R. G.; Weckstein, A. M., and Sarnoff, H.: The Inadequacy of a Standardized Dosage of Penicillin in the Treatment of Gonococcic Urethritis, *J. A. M. A.* 128: 168 (May 19) 1945. Seabough, D. R.: Penicillin in Treatment of Gonorrhea, *J. Missouri M. A.* 42: 272 (May) 1945.

than those used to treat the original infection. In 1 instance the organism isolated in the original infection was sulfonamide resistant while that cultured during the reinfection was highly susceptible.

The clinical impression gained from the close observation of these cases was that they responded somewhat more rapidly and more completely than cases treated with the usual 100,000 units of regular penicillin given in five injections at two hour intervals. This was generally evidenced by the rapid disappearance of symptoms and of discharge and the failure to find more than occasional leukocytes in prostatic secretions obtained on the day following treatment. This was in sharp contrast to the findings after the administration of large doses of oral preparations, when, in spite of negative bacteriologic findings in smears and cultures, the discharge and the symptoms often persisted longer than after the routine treatment with regular penicillin given intramuscularly.¹²

In cases of gonorrheal arthritis and epididymitis too the clinical response was quite rapid. Five patients with well established arthritis and purulent urethritis were treated with 20,000 units intramuscularly every three hours and single intra-articular doses of 5,000 to 15,000 units. All were entirely free from signs of infection within twenty-four hours, although stiffness and soreness in the joints persisted for several days during which the treatment was continued. In 2 additional patients there was joint tenderness and pain without swelling accompanying an acute urethritis, and a complete cure was effected in each instance by a total of 100,000 units given in four doses at three hour intervals. Two patients with severe epididymitis were completely relieved except for slight residual tender-

12. Finland, M.; Meads, M., and Ory, E. M.: Oral Penicillin, *J. A. M. A.*, to be published.

ness after the first day of treatment. One of them had urinary retention, probably resulting from acute prostatitis, and was relieved fairly promptly after the first injection was given.

Pneumonia.—Fourteen cases were treated with doses of 15,000 units of penicillin X every three hours. One patient, 72 years old, with diffuse bronchopneumonia of undetermined etiology complicating severe blood loss and congestive heart failure, died after two days of treatment. The others all had typical primary lobar pneumonia, previously untreated. A pneumococcus was identified from the sputum in 11 of these cases. They were all of moderate severity, but only 1 had a positive blood culture before treatment. They all responded promptly and were essentially afebrile and symptom free within twenty-four hours.

One additional case of a recurrent pneumococcus type 29 bacteremia in the terminal stages of obstructive jaundice from carcinoma of the ampulla of Vater was treated. The bacteremia cleared rapidly, but the same organism was found at autopsy in multiple milary abscesses of the lung mixed with Friedländer's and influenza bacilli.

Other Infections.—A case of staphylococcal bacteremia and pneumonia complicating carcinoma of the lung was treated for a few days with doses of 20,000 units every three hours. The bacteremia was rapidly cleared, but the pulmonary symptoms persisted. Three patients with severe and extensive cellulitis were treated with penicillin X. One of them had a severe aplastic type of anemia with agranulocytosis and died after two days of treatment. The other 2 showed rapid symptomatic improvement without further extension of the lesions, which then cleared over a period of a week. One received 15,000 units every three hours, and the other 20,000 units every four hours.

COMMENT

The methods used both in determining the sensitivity of bacteria and in estimating the serum concentrations are admittedly crude. Before the introduction of the international standards,¹³ the assay of the various commercial preparations of penicillin were likewise quite crude and involved appreciable errors.¹³ Possibly some of those errors and other discrepancies were due to variations in the proportions of the different forms of penicillin, as pointed out by others.¹⁴ It is most unlikely, however, that the consistent differences between the commercial preparations and the lots of penicillin X observed in the present studies could be explained on the basis of such errors. The similarity of the results obtained with the different lots of commercial penicillin serves to emphasize the superiority of the penicillin X.

The serum levels were determined with the use of a strain of hemolytic streptococcus which was more sensitive to penicillin X than to penicillin G. While this at first glance may seem to give only an illusion of higher levels with the preparation of X, it is nevertheless an expression of greater serum activity against the test strain. Since most of the other strains tested, exclusive of the staphylococci, showed a similarly greater *in vitro* sensitivity to penicillin X, a comparable superiority in therapeutic effect may be anticipated in infections with these strains.

The present results were obtained with commercial preparations which probably contained negligible amounts of penicillin X and were contrasted with lots containing different amounts of the latter form. Even the two lots of penicillin X showed appreciable differences in activity. Further studies are necessary to determine whether preparations made on a commercial scale from surface cultures and containing smaller amounts of penicillin X will show a proportionate superiority over the preparations which consist almost entirely of penicillin G.

It is obviously not possible to draw any definite conclusions from the results of the present preliminary clinical trial. The numbers of cases are too few and they were not adequately controlled to justify any deductions as to the therapeutic superiority of penicillin X. As far as one could judge from observing the patients clinically, the results of treatment with penicillin X were at least as good as those seen in similar cases treated with commercial lots. The gonococcal infections seemed to respond more rapidly and more completely. These results indicated that penicillin X, like regular penicillin, is nontoxic and highly effective in susceptible infections.

It still remains to be seen whether comparable clinical results can be achieved with significantly smaller doses or longer intervals by the use of penicillin X or with preparations containing an appreciable proportion of that form.

SUMMARY AND CONCLUSIONS

When tested simultaneously with preparations containing 65 per cent or more of penicillin X and with commercial lots which consist almost entirely of penicillin G, most strains of group A hemolytic streptococcus, gonococcus and meningococcus were from two to eight times more sensitive to penicillin X, most strains of pneumococcus and *Streptococcus viridans* were twice as sensitive to penicillin X and most of the staphylococci were equally sensitive to the two kinds of penicillin.

Levels of penicillin activity in the serum against a strain of hemolytic streptococcus were significantly higher and sustained longer after intramuscular injections of penicillin X than after injections of the same number of units of regular penicillin.

These findings suggest that comparable therapeutic results may be expected with the use of smaller doses or with the same doses given at longer intervals when penicillin X is used.

A preliminary clinical trial indicated that penicillin X is nontoxic and at least as effective as regular penicillin in the same doses in cases of pneumonia and probably more effective in gonococcal infections. Further clinical trials with the use of smaller doses and longer intervals are necessary in order to establish the therapeutic superiority of penicillin X.

Barber Surgeons.—Barber surgeons in the Middle Ages would notify the public that the time for bleeding had arrived by displaying a blood-soaked bandage at their doors, the origin of the familiar red-striped barber pole. The barber shops of Baghdad literally streamed with blood during the propitious periods for bloodletting. The practice of bloodletting was rigidly adhered to in the cloisters of the Church.—Gordon, Benjamin Lee: *The Romance of Medicine*, Philadelphia, F. A. Davis Company, 1944.

13. Hunter, A. C., and Randall, W. A.: Standardization of Assay of Penicillin, *J. A. Off. Agric. Chemists* 27: 430 (Aug. 15) 1944.

14. Penicillin Failures, editorial, *U. S. Nav. M. Bull.* 44: 1083 (May) 1945. Penicillin Variations, *J. A. M. A.* 128: 736 (July 7) 1945.

LOW SODIUM CHLORIDE INTAKE IN THE TREATMENT OF INSOMNIA AND TENSION STATES

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Low sodium chloride dietary intake has been attempted in the treatment of epilepsy, migraine, Ménière's syndrome, hypertension, cardiac insufficiency and certain renal conditions with considerable success. In the treatment of epilepsy it has generally been regarded as efficacious in increasing the therapeutic effectiveness of bromides, while a number of authors have maintained that increased salt intake increases the frequency of convulsive seizures. In earlier dietetic literature, Friedenwald and Ruhräh,¹ for instance, in their discussion of the role of restricted salt intake, refer to past empirical clinical observations in which such a regimen was noted to have benefited certain "extremely nervous and irritable individuals."

Delaville and Tscherniakofsky² investigated the chloride content of the brains of a group of mental patients at autopsy and found increased chloride retention in most of these, thus suggesting the possibility of some relationship between certain mental disorders and chloride metabolism.

Von Noorden³ noted beneficial effects following the administration of a low salt diet to what he classed as "neurasthenic patients" but apparently believed that these effects were due to purely psychic-suggestive factors rather than to any specific effects associated with salt reduction. Nevertheless, it is of interest that von Noorden observed diminution in the skin reactivity to external stimuli in patients who had been deprived of sodium chloride in their diets. He attached particular significance to the resulting dehydration and increase of calcium ions in the tissues following sodium depletion. This view was supported by R. Schultz,⁴ who found that the cutaneous reactivity of the scalp was notably increased on a rich sodium chloride intake. In animal experiment Vogt⁵ clearly confirmed the earlier observations of Wertheimer and Abderhalden⁶ that acidifying diets tended to increase skin irritability in rabbits, while alkalinizing diets had the reverse effect. Further evidence accumulated revealed that the irritability of nerve tissue in vitro was increased by the excess of sodium ions and decreased by the addition of calcium ions. Clinically it was well known that a low sodium chloride intake altered the body fluids in the direction of alkalinity and

that excessive loss of chloride as a result of prolonged vomiting, for instance, would lead to alkalosis and tetany.

On the other hand, we are all quite familiar with the beneficial effects of a high sodium chloride intake in Addison's disease and of the interesting psychic effects of salt insufficiency in the addisonian patient. Further, that the addition of adequate amounts of sodium chloride to the diets of such patients frequently results in striking improvement in mental well-being. Recently Johnson⁶ reported observations on a group of persons suffering from mild degrees of hypotension, chronic exhaustion and lack of drive accompanied by a moderate degree of mental depression, in whom he found relatively low blood chloride levels not exceeding 450 mg. of chlorides per hundred cubic centimeters of whole blood; however, he did not report whether these patients had impaired chloride retention. He reported beneficial effects in all of these patients following the addition of 2 to 6 Gm. of salt to their daily diet, noting gratifying symptomatic relief after four to five days, with a return to the former symptoms following the removal of the added salt.

On the basis of these observations concerning the role which sodium chloride appears to play in certain mental disorders, it seemed appropriate to attempt to observe the effects of salt reduction in patients suffering from severe tension and insomnia states.

SUBJECTS AND PROCEDURE

Observations were conducted on a group of 20 patients with pronounced insomnia, nervous tension, anxiety and increased emotional lability. They ranged in age from 20 to 53 years. Sixteen were men and 4 women. Six were postmorphine addicts,⁷ 6 were merchant seamen⁸ suffering from so-called convoy fatigue with insomnia and anxiety, and 8 were patients under treatment at the New York State Psychiatric Institute. Of this latter group of 8 cases 4 had been diagnosed as psychoneurotic, 4 as early cases of schizophrenia. All patients were observed for a minimum period of one week prior to being placed on a restricted salt regimen, during which time their behavior in the ward and their nocturnal sleep were observed. In each case the blood and urinary chlorides were determined prior to treatment, and in 9 subjects the urinary chloride excretion was carefully checked at intervals throughout the treatment period. The blood chloride controls were not continued, as they were not considered a reliable indicator of the body chloride level, since low tissue levels have been observed despite higher blood values.⁹ Diurnal electroencephalographic tracings were done on the control group of 8 patients before, during and after the dietary regimen. Nocturnal electroencephalographic records, unfortunately, could not be obtained at the time. The method of salt reduction consisted in utilizing a low salt, neutral ash diet which contained considerable leafy vegetables and potatoes, to which approximately 0.5 to 2 Gm. of sodium chloride was added daily. This high potassium-containing diet furthered the chloride excretion. Five subjects in the series were given severely restricted diets containing not over 0.5 Gm. of salt per

Dr. Bernard L. Pacella made the electroencephalographic recordings and interpretations. Dr. Irville H. Mackinnon selected the patients.

Read at the centennial meeting of the American Psychiatric Association and before the Section of Neurology and Psychiatry, District of Columbia Medical Society, Washington, D. C., on Dec. 7, 1944.

Dr. Nolan D. C. Lewis, director of the New York State Psychiatric Institute, and Dr. Frank M. Faget, chief medical officer of the Ellis Island Marine Hospital, U. S. Public Health Service, made this investigation possible.

Dr. Ernst P. Pick of Columbia University guided in the preparation of some of the material of the manuscript and conducted parallel animal experiments in order to shed some light on the physiologic mechanisms involved in sodium chloride depletion.

1. Friedenwald, J., and Ruhräh, J.: Diet in Health and Disease, ed. 6, Philadelphia, W. B. Saunders Company, 1925, p. 752.

2. Delaville, M., and Tscherniakofsky, P.: Retention chlorée cérébrale dans divers états mentaux, *Compt. rend. Soc. de biol.* 100: 473-475, 1929.

3. von Noorden, C.: Alte und neuzeitliche Ernährungsfragen, Berlin, Julius Springer, 1931, p. 117.

4. Schultz, R., cited by Klodt, W.: Schadt das Kochsalzden gesunden Organismus, *Med. Klm.* 33: 925-930 (July 9) 1937.

5. Vogt, J. H.: Influence of Some Diet Factors on Irritability of Skin and on Mineral Contents of Skin and Blood Plasma in Rabbits, *Acta med. Scandinav.*, 1941, supp. 116, pp. 1-120.

6. Johnson, A. S.: Sodium Chloride Therapy, *New England J. Med.* 215: 438-443 (Sept. 3) 1936.

7. U. S. Public Health Hospital, Lexington, Ky.

8. U. S. Marine Hospital, Ellis Island, N. Y.

9. See comments by J. P. Peters on pages 299 and 300 of G. C. Duncan's *Diseases of Metabolism* (Philadelphia, W. B. Saunders Company, 1942).

day for a limited period. During the period of observation no other treatment was administered, and sedative medication was withheld except when absolutely essential. The subjects were permitted to maintain the same daily routine to which they were previously accustomed. After completion of the preliminary clinical and laboratory control observations the subjects were placed on a low salt regimen for periods varying from twenty-one to forty-two days. During this time the length and character of sleep, blood pressure, weight and urine output were recorded. Fasting blood sugar was controlled in 3 patients. For control purposes the aforementioned 9 subjects were given 9 Gm. of sodium chloride daily in the form of enteric coated tablets and were kept on the salt restricted diet for an additional two to three weeks. Subsequent to this the regular hospital diet was resumed and the sodium chloride tablets were discontinued. The aim of the control procedure was to add an amount of salt which would be consistent with an approximately normal intake. Since most authorities agreed that the average daily intake of salt may vary from 10 to 30 Gm., and that 3 to 5 Gm. is usually sufficient to maintain an adequate body chloride level, it was decided to add 9 Gm. daily to the experimental diet for control purposes. Actually under normal conditions not over 5 Gm. is assimilated daily by the body, the surplus being excreted via the kidneys, the sweat glands and the gastrointestinal tract.

The following criteria regarding the character of sleep served as guides in observing these patients: The onset, duration, continuity and regularity of sleep, motility during sleep, ability to fall asleep after being awakened, diurnal drowsiness and afternoon sleep, and rest obtained from sleep as well as dream phenomena were noted. In addition, the general psychiatric picture including mood, concentrating ability and activity drive of the patients were observed.

OBSERVATIONS

During the initial period of the diet the usual diuretic effects were observed and the loss of body fluids appeared to parallel closely the chloride excretion. In no instance was dehydration or weight loss important. After four to seven days on the diet the majority of the patients began to exhibit a gradual decline in nervous tension, irritability, activity drive and restlessness, accompanied by increased ability to fall asleep and a general improve-

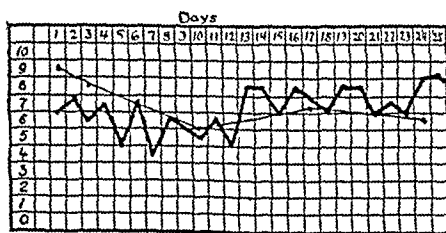


Fig 1 (case 1)—Comparison of sleep and urine chloride excretion. Heavy line, hours of sleep, light line, grams of urine chloride.

ment in the character of sleep. It will be noted (figs. 1, 2 and 3) that the urinary chloride excretion remained consistently lower than prior to treatment. Physical signs such as diminution of reflex activity, reduced skin reactivity and diminished finger tremor were noted. There were consistent gradual declines in blood pressure varying from 10 to 40 mm. systolic and moderate decline in pulse rate, usually falling to low normal levels, ranging from 60 to 72. It was further observed that when

a definite decline in urinary chloride excretion was achieved the subjects fatigued more readily, tending to retire at an earlier hour, usually falling asleep within ten to fifteen minutes, and sleeping soundly until awakened at 6 a. m. The maximum amount of sleep permitted was eight hours. As far as could be observed by the attendants, motility during sleep appeared considerably reduced. It was consistently noted that when the sub-

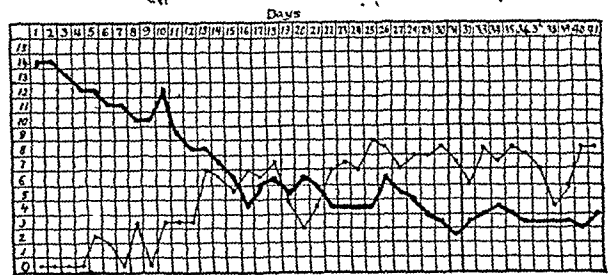


Fig 2 (case 2)—Comparison of sleep and urine chloride excretion. Heavy line, grams of urine chloride. Light line, hours of sleep.

jects were awakened by a desire to urinate during the phase of increased diuresis they readily fell asleep again, whereas formerly they had experienced considerable difficulty in regaining sleep after awakening. After two to three weeks on the diet a notable decline or absence of dream phenomena was consistently observed among the subjects. In several patients there was not only a substantial lengthening of the duration of sleep but also a tendency toward drowsiness during the afternoon hours accompanied by signs of moderate muscular fatigue. Some of the subjects formed the regular habit of taking afternoon catnaps, to which they were not previously accustomed.

In general, psychomotor activity was reduced and the patients appeared more relaxed and in some instances even phlegmatic. There was a reduction in nocturnal emissions and of sex dreams in some cases. In general, a distinct decline in the intensity of emotional response became discernible, and the subjects no longer seemed unduly excited by incidents which formerly evoked manifest signs of emotional disturbance. In some of the patients on the severely salt restricted regimen the effect bordered on apathy, patients generally giving an impression of increased calm and stability. Following the onset of more normal sleep habits, general improvement in mood was observed. There was improved ability to concentrate, as revealed by the manner in which patients performed various tasks. One subject who had been unusually tense observed that he was able to concentrate satisfactorily on reading material for the first time in the twenty-nine months he had been at the institution. Three of the subjects suffering from frequent severe headaches which had contributed appreciably to their emotional state and insomnia obtained partial or complete relief after two or three weeks on the diet. One subject suffered from an intermittent peripheral vascular disorder diagnosed as Raynaud's disease, characterized by periodic episodes of numbness, palm and blanching of the extremities, hands and feet, accompanied by considerably increased psychic tension and anxiety. He exhibited pupil dilatation and considerable perspiration, particularly from the volar surfaces of the hands and feet. After approximately three weeks on the diet this subject showed considerable relief from his vascular disorder, rested better and made a general impression of increased stability, calm and

diminished anxiety and tension. Of the patients treated, 3 failed to respond satisfactorily and the diet was discontinued. Two of these were patients with a fairly high degree of habituation and physical dependence on barbiturates, and 1 of the latter was a schizophrenic with accentuated delusional activity.

The fasting blood sugar levels on 3 controlled subjects showed a considerable decline, varying from 10 to 40 mg. in the third week. The significant fact was that the blood sugar of each of these patients, though maintained on an identical fairly constant diet, reached almost equal levels of 80 to 81 mg., although the original blood sugar showed a 40 mg. variation. This blood sugar alteration was paralleled by simultaneous reductions in blood pressure and pulse rate. Of 13 patients given the sodium chloride placebos for control purposes, 10 developed sleep disturbances after seven to ten days. (fig. 3).

No abnormal electroencephalographic activity was produced as a result of the diet. During the course of clinical improvement there was generally an increase in the alpha index, with some diminution in the incidence and regularity of alpha activity during periods of increased tension (fig. 4).

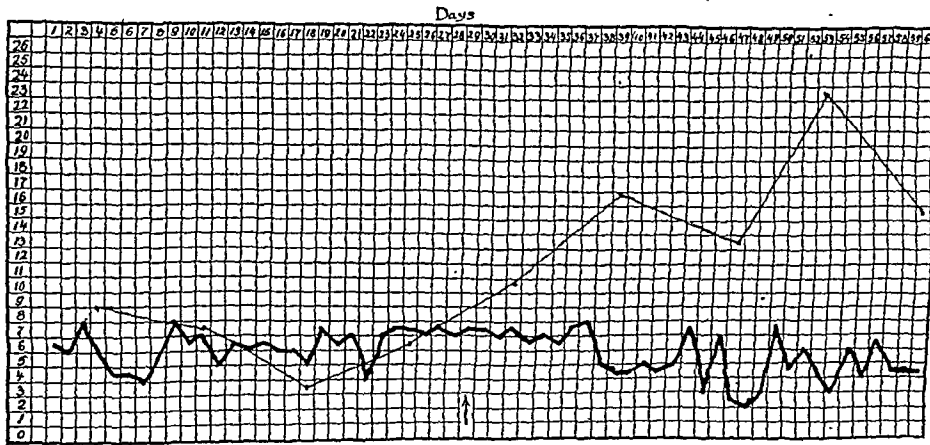


Fig. 3 (M. S., Psychiatric Institute).—Note that on the eighteenth day 2 Gm. of sodium chloride was added to the salt restricted regimen owing to the fact that the urine chloride excretion had fallen to less than 4 Gm. in twenty-four hours, thus causing an upward deviation of chloride excretion curve. This chart illustrates the effect of giving sodium chloride disguised as placebos during the control phase. The arrow indicates the point when the control salt was given. Note the reduction and irregularities in the pattern of sleep after nine days on the salt control. See figure 4 for electroencephalographic alterations on this patient. The patient was permitted a considerable increase in meat and milk intake during the control phase, thus causing a fairly considerable increase in the sodium chloride excretion.

Some of the representative case histories follow:

REPORT OF CASES

CASE 1.—C. T., a white woman aged 24, admitted to the Psychiatric Institute on Feb. 29, 1944, exhibited noticeable anxiety, seclusiveness and preoccupation over certain obsessive ideas accompanied by a considerable dread of falling asleep for the past several months. It was observed that she showed little social drive and obvious feelings of insecurity in the presence of others. She would manifest periodic attacks of forced breathing, staring into space motionless with intermittent crying spells, which would stop abruptly. She had frequent fearful dreams, usually associated with delusions of being attacked violently with resulting physical harm. The low salt diet was instituted, and all sedative medication which she had been receiving for five weeks at the institute with unsatisfactory therapeutic results and for some time previous to admission was discontinued.

During the initial period on the diet, the patient showed considerable diurnal tension and sleep irregularity. A notable improvement occurred on the thirteenth day, when she appeared considerably relaxed, her anxiety greatly reduced, and she slept for eight and one-half hours. From this time on she showed continual improvement with much improvement of her mental state paralleling her improved sleep, as can be noted from figure 1.

More recent data revealed that this improvement persisted; the patient showed weight increase, appeared calmer and was able to participate better in various activities such as bridge and ping-pong, which she had refused previously. Improvement in mood was striking, following her improvement in sleep. She discussed her conflicts without producing the sharp emotional discharge which was manifested previously. She had no fearful dreams during the period of improved rest. Of further interest is the fact that when later given enteric coated salt tablets (9 Gm. daily) she showed a rather rapid return toward her former mental state and sleep disturbance.

CASE 2.—I. Z., a white man aged 43, admitted to Ellis Island Marine Hospital on Jan. 27, 1944, complained of a high degree of emotional irritability, restlessness and insomnia, accompanied by symptoms of dizziness of a periodic paroxysmal character, palpitation of the heart and sweating. The patient gave a history of a long persisting state of increased tension and insomnia, which followed industrial chronic mercury poisoning incurred five years before. For several years he received considerable amounts of barbiturates and later bromides, building up a considerable dependence on these drugs, but stated that he obtained little subjective relief from them. He stated that he had had no such medication in the last year.

The patient was placed in an observation ward for five days. It was observed that he was decidedly restless; that he slept only one or two hours per night, usually in brief catnaps with

wakeful intervals. He showed signs of subjective and objective fatigue. His weight was 170 pounds (77 Kg.), his height 5 feet 8 inches (173 cm.).

On initial physical examination he appeared well nourished. His blood pressure was 130/70. There were hyperactive reflexes and fine finger tremor. The pupils were somewhat dilated and reacted promptly to light. Dermographism was increased. Most upper teeth were absent; there was some pyorrhea of the lower, with a gray zone on the gingival margin.

On Jan. 31, 1944 a salt free diet was instituted. The patient showed the usual increased diuresis and on the third day noted that his sweating was considerably reduced. It was noteworthy that after several days the patient's water intake diminished materially although he was permitted all the fluids he desired.

As seen in figure 2, following the first week on the salt restricted regimen the patient began to rest better; however, there was no especial improvement in sleep until the fifteenth night, when he slept seven and one-half hours and fell asleep without difficulty. He began to fatigue more easily and after three weeks complained of slight aching of the calves. From then on he averaged from seven to eight hours of restful sleep per night until the thirty-eighth day (fig. 2), when he showed signs of increased irritability, tension, abdominal cramps, anorexia, tremor (finger), hyperactive reflexes, restlessness and sleep disturbance. His salt excretion (urinary) had fallen to 2.94 Gm. in twenty-four hours, and his urine was consistently alkaline. This drop of from 14 to less than 3 Gm. of urinary chloride excretion per day occurred after thirty-six days on the salt restricted diet. It was concluded that the patient was alkalotic and sodium chloride was administered (6 Gm. daily), following which there was a fairly rapid improvement and relief from symptoms.

The patient exhibited a drop in urinary chloride excretion of from 14 to less than 3 Gm. in twenty-four hours. During this time he exhibited increased diuresis, losing approximately 13 pounds (6 Kg.). His blood pressure went from 130/70 to 90/58, the blood pressure beginning to show clearcut decline after two weeks on the diet and then remaining consistently low. During the time that the urinary excretion of chloride remained above

3 Gm. in twenty-four hours the patient felt relieved of his tension and showed a decided improvement in sleep. No ill effects were noted until urinary excretion fell below 3 Gm. a day.

COMMENT

With reference to the findings, it is noteworthy that subjects with insomnia show a lower percentage of records with high alpha indexes than the general population.

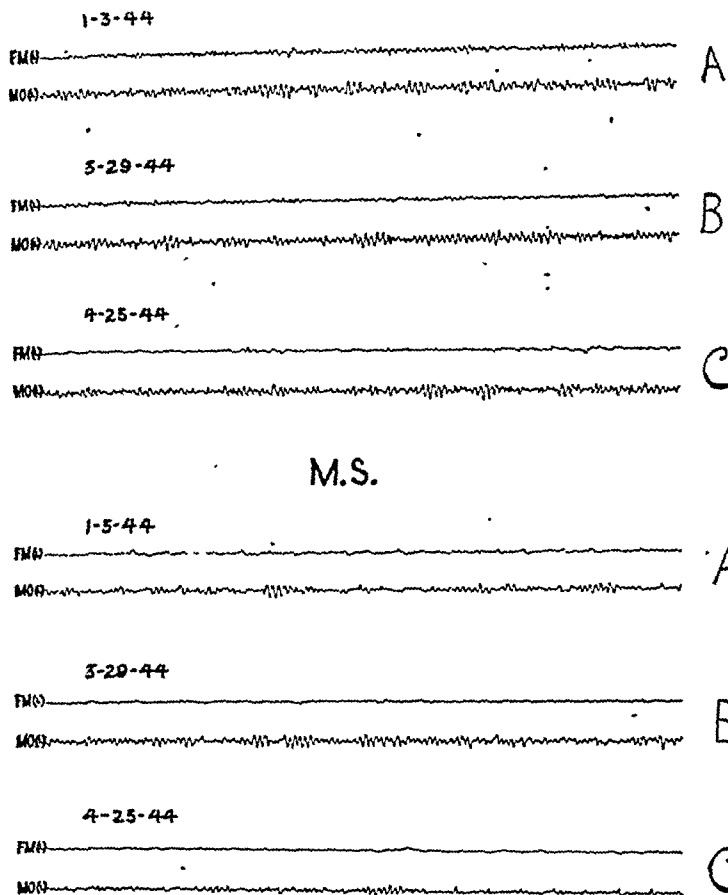
In evaluating the results of the moderately restricted diet containing 2 Gm. of sodium chloride daily as compared to the rigidly enforced regimen permitting not over 0.5 Gm. per day, it was our impression that the former procedure was distinctly more beneficial and better tolerated by the patients. Observations by Kirsner and his co-workers¹¹ and other investigators show that the nonprotein nitrogen is not elevated appreciably by gradual dechloruration. McCance and Widdowson¹² observed severe nitrogen retention following rapidly induced experimental hypochloremia and alkalosis produced by diet and sweating. Patients should be watched for signs of hypochloremia, such as excessive muscular weakness, listlessness, fatigue, anorexia, intestinal cramps and gastric upset, associated with nausea, apathy, dizziness, tachycardia, cardiac arrhythmia, muscular twitching and achlorhydria.

Although diuresis was particularly increased during the initial period of treatment, no persisting urinary frequency or bladder discomfort was noted. Diabetes mellitus, severe renal dysfunction and advanced coronary disease were considered as contraindications to this form of treatment. A word of caution might be added concerning a too rigid salt curtailment in hot weather, since the loss through perspiration is considerable and salt lost in this manner cannot be regained by the body. While under treatment no heat therapy should be administered and excessive physical exertion should be forbidden.

No harmful effects were observed in those patients receiving the moderately restricted diet. Attempts were made to stabilize the daily urinary chloride excretion at a level of 4 to 6 Gm. in twenty-four hours, and sufficient salt was added in order to achieve this level of excretion. Thus frequent checks of the urine chloride excretion and acidity are of considerable control value. A simple and sufficiently accurate method of controlling the urinary salt excretion is provided for in the test devised by Fantus,¹³ which gives a definite quantitative result.¹⁴ These determinations can best indicate

the basic sodium chloride requirement of the patient. Thus complications can be avoided which might result from too prolonged salt restriction with the subsequent alterations in acid-base equilibrium and fluid balance. On the moderately restricted regimen a satisfactory stabilization level of chloride excretion is usually attained after seven to fifteen days and the sodium chloride intake can be increased to 3 to 4 Gm. daily. Patients who on initial examination showed impaired chloride retention, particularly when this is accompanied by clinical signs of chronic exhaustion, hypotension and muscular weakness, should not be subjected to this treatment.

B.M.



M.S.

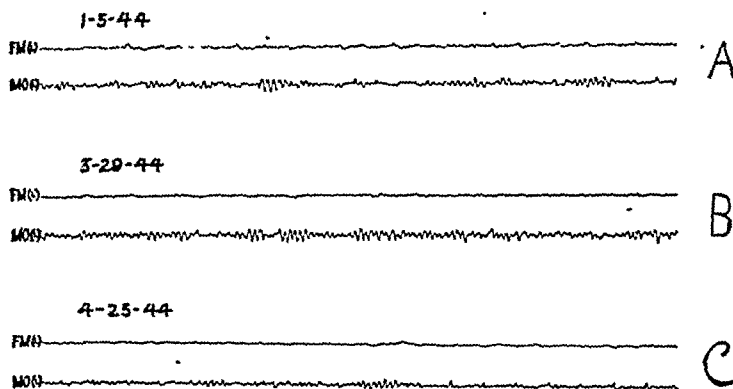


Fig. 4.—A, pretreatment; B, low sodium chloride intake; C, sodium chloride control.

There is evidence that a definite shift of acid-base equilibrium toward alkalinity leads not only to the symptoms of physical distress accompanying hypochloremic alkalosis but also to a state of increased irritability and sleep disturbance (fig. 2). This reversal phenomenon appears to be based on the state of acid-base balance; for instance, of interest is the fact that patients with circulatory acidosis, as in cardiac insufficiency, tolerate drastic chloride restriction quite well for considerable periods of time in contrast to patients without circulatory insufficiency. In the nonacidotic patient it is neither necessary nor wise to enforce a too rigid curtailment of salt. Reduction of the urinary chloride excretion to a level of 3 Gm. or less per day is distinctly undesirable and may even be harmful. Drastic sodium chloride restriction, according to Cohn

10. Liberson, W. T.: Functional Electroencephalography in Mental Disorders, *Dis. Nerv. Sys.* 5: 357-364 (Dec.) 1944.

11. Kirsner, J. B.; Palmer, W. L., and Knowlton, K.: Studies on Experimental and Clinical Hypochloremia in Man, *J. Clin. Investigation* 22: 95-102 (Jan.) 1943.

12. McCance, R. A., and Widdowson, E. M.: The Secretion of Urine in Man During Experimental Salt Deficiency, *J. Physiol.* 91: 222-231 (Nov. 26) 1937.

13. A Test for Salt Depletion, Great Britain War Office, Army Medical Department Bulletin 23, May 8, 1943; abstr., *Bull. War Med.* 4: 73-74 (Oct.) 1943.

14. Ten drops of a twenty-four hour urine specimen are put in a test tube with a dropper pipet followed by one drop of 20 per cent potassium chromate. Silver nitrate (29 per cent) is then added drop by drop and shaken until the color changes sharply from canary yellow to orange brown. The number of drops of silver nitrate used gives the number of grams of sodium chloride per liter of urine and is calculated on the basis of the total urine output for twenty-four hours.

and Soskin,¹⁵ tends to lower the oxidative processes in the tissues and thereby results in the accumulation of lactic acid and other fatigue products in the blood and muscles. This may be manifested in salt restricted patients by such symptomatic complaints as muscular aches and fatigue. These authors have further pointed to the important role of chloride anions and sodium cations in the transfer of oxygen from the blood to the tissues and in the removal of carbon dioxide. They have clearly demonstrated by means of both *in vivo* and *in vitro* experiments that the total oxygen consumption of dogs that have been depleted of sodium chloride is abnormally low and is permanently restored to the normal value by administering sufficient amounts of sodium chloride.

For some time there has been considerable controversy concerning the relative effects of chloride depletion versus bromide action. The consensus at present appears to be that bromides exert a direct depressant effect on the nerve cells but that this action is enhanced by the fact that bromides are readily able to displace chlorides from the body tissues, thus increasing the capacity of the tissues for the assimilation of bromides. The question of how much of this depressant action is due to bromide effect and to what extent this effect might be due to the secondary loss of chlorides has remained still unanswered but is an interesting consideration in view of our observations.

In favor of the latter possibility, it is pointed out that bromide action is more effective when the chloride in the diet is reduced. Further, the addition of chloride to the diet usually relieves symptoms of bromism and restores epileptic seizures which have disappeared following bromide medication. Jacques Loeb¹⁶ found that certain fish are depressed by bromide solution but remain normal if chloride is added. It was felt that further clinical observation on the effects of dietary salt loss might throw more light on the role of chloride loss in the aforementioned mechanism.

From these observations it appears that chloride depletion results in a depression of central as well as peripheral nervous reactivity and that this effect can be demonstrated by means of animal experiments. Animal studies that Dr. E. P. Pick and I¹⁷ conducted showed a pronounced reduction in the brain electrical activity following sodium chloride depletion.

It is of additional interest that during the periods of clinical improvement the reduction in nervous tension was accompanied by certain indications of reduced adrenomedullary activity, as evidenced by declines in blood sugar, blood pressure and pulse rate. Whether these alterations are due primarily to central or to peripheral factors or both is not yet clear. Further, the question as to whether the loss of sodium chloride or the increased accumulation of fatigue products acts on the central sleep centers also cannot be answered at this time.

The value of prolonged administration of sleep inducing drugs in psychiatric therapy can certainly be regarded as a sort of necessary evil. An important drawback in the use of such medication is that natural physiologic sleep is not usually produced and that patients frequently feel poorly rested in spite of the induced sleep. The administration frequently of hypnotic drugs to relieve tension and anxiety states does not always give satisfactory results. For instance, increased central excitability can often be observed following the cessation of barbiturate action. Furthermore, the true mental picture may be obscured or altered by such medication. Obviously there is the necessity of rehabilitating patients to a more normal physiologic sleep routine, which substantially aids in the development of a more favorable alteration in mood and a reduction in tension. In many instances this objective is not satisfactorily achieved by means of sedative medication.

The advantages of employing a drug free method of caring for such states is quite obvious. Undesirable complications such as the development of drug tolerance, habituation and physical dependency and the harmful physical effects of prolonged medication need no reiteration here.

It is felt that further study along these lines is indicated and that considerable additional data could be secured by means of electrical skin resistance studies, nocturnal electroencephalograms and further blood sugar controls.

The possibility that salt reduction may potentiate the sedative action of certain drugs is being explored.

CONCLUSIONS

Twenty patients suffering from insomnia and tension states were treated by means of a salt restricted dietary regimen with the following results:

1. Pronounced or moderate relief from tension and insomnia were observed in all but 3 of the cases.
2. Controls on 13 patients revealed that 10 patients suffered relapses following the addition of salt to the diet.
3. Improvement was noted generally in the duration and regularity of sleep, with a concurrent reduction in lability and intensity of emotional response on the lower salt intake.
4. No abnormal electroencephalographic alterations followed sodium chloride reduction, and better alpha indexes were observed in those patients exhibiting clinical improvement.
5. No untoward effects were observed in patients receiving moderately restricted salt diets.
6. Improved sleep and reduction in tension was usually accompanied by lowered blood pressure, pulse rate and additional evidence of reduced sympathetic tone.
7. The actual psychiatric condition of the patients is not materially altered, except as it might be benefited by reduction in tension and improved rest.
8. The application of low sodium chloride diets as described is suggested as an important adjunct to psychotherapeutic measures in the treatment of insomnia and tension states.

15. Cohn, C., and Soskin, S.: Influence of Serum Chloride Concentration on Oxygen Consumption of Dogs, *Am. J. Physiol.* **139**: 80-83 (May) 1943. Cohn, C.; Levine, R., and Soskin, S.: Influence of Sodium Chloride Concentration in the *In Vitro* Oxygen Consumption of Rat Diaphragm in the Presence and Absence of Red Blood Cells, *ibid.* **139**: 84-88 (May) 1943.

16. Cushman, A. R.: *A Textbook of Pharmacology*, Philadelphia, Lea & Febiger, 1936, p. 411.

17. Pick, E. P., and Miller, M. M.: The Influence of the Loss of Diffusible Crystalloids on the Electrical Activity of the Brain, *J. Neurophysiol.* (Jan.), 1945.

TREATMENT OF ACUTE THYROIDITIS
WITH THIOURACIL

PRELIMINARY REPORT

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AND

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Prior to Sept. 18, 1944 the treatment of acute thyroiditis had in our experience been unsatisfactory. On that date a young woman with the outward appearance of good health, the wife of a physician, presented herself at our office with the following history: She had enjoyed good health all her life except for diseases of childhood. She had had no recent infection. One week before, her thyroid gland had become swollen and quite sensitive to pressure. The gland was somewhat painful on swallowing. Generally she had not felt well, was more nervous, was rather irritable and had a tendency to increased perspiration. She had been more conscious of her heart action and had a moderate elevation of temperature. She thus complained of the general symptoms of a mild infectious process.

Physical examination revealed that the patient was apparently of good nutrition and good color. The only important findings were an acutely tender and swollen thyroid gland, a temperature of 99.6 F. and a white blood cell count of 9,600 per cubic millimeter with polymorphonuclears 64 per cent. Her heart, lungs and blood pressure were essentially normal. A diagnosis of acute thyroiditis was made.

It was explained to her that we knew of no satisfactory treatment for acute thyroiditis, that the disease was somewhat self limited and usually ran its course in a period of from six weeks to six months and that x-ray therapy usually shortened the course of the disease but that in our experience the patients on whom it was not used on the average wound up with a more normally functioning thyroid gland than did those on whom it was applied. We suggested that if she was willing to be the "guinea pig" we would like to try thiouracil as a therapeutic measure. She willingly assented and was told to take 0.2 Gm. of the drug three times daily. She was instructed as to its dangers and requested to have a white blood cell count every two or three days. In one week she returned stating that she was completely well and free from symptoms. That report was verified with one exception. This was that the gland had not changed in size and was still harder than a normal thyroid gland. The tenderness of the gland had disappeared, her temperature was normal and the white blood cell count was normal. The dose of the drug was reduced to 0.2 Gm. once daily and continued for two weeks. Since then she has been kept under observation for four months. The gland has returned to normal size and consistency and also to normal function.

Thinking that the result obtained might be an accident or the result of a mild type of thyroiditis, we waited patiently but hopefully for an opportunity to try the treatment on other patients with acute thyroiditis.

Before going into further detail in the report of a group of such cases, it seems fitting to discuss general considerations, previous treatment and the results obtained.

We have used iodine, rest, hot applications, ice bags and x-ray therapy. When the sulfonamide drugs came out, with the thought that acute thyroiditis was possibly an infectious process, we tried them. As well as we could determine, no benefit to the patients resulted from their use. One woman with unusually severe thyroiditis referred to us in the third week of the disease had had a temperature rise as high as 105 F. She was placed on sulfathiazole and as far as we could determine received no benefit. We have treated several other rather severe cases of thyroiditis with the sulfonamide drugs and none seemed to be benefited. We have not used penicillin, as until recently it was not available. Therefore we do not know whether it would be beneficial or otherwise.

Prior to September 1944, as previously stated, the only therapeutic agent that had definitely seemed to shorten the course of the disease was x-rays. Their use was followed in a discouraging percentage of cases by varying degrees of hypothyroidism or myxedema. No constant dosage of x-ray therapy was used, but in all cases so treated the dosage was much less than would have been indicated in cancer of the thyroid gland.

During the past twenty years, for varying reasons, we have operated on a few patients with acute thyroiditis. Cultures, both aerobic and anaerobic, of the tissues removed were made in most of the operative cases. All were negative for growth. We have not had available facilities for virus cultures and therefore do not know whether they might be positive.

We believe that biopsy cultures for the determination of the presence or absence of virus infections in a limited number of early cases of acute thyroiditis, performed by those qualified and equipped to make such studies, to be not only justifiable but a desirable experiment. In the light of our experience in the treatment of this disease by thiouracil, the proved presence of virus infection would open a field of very interesting research in the therapy of virus disease in general.

Histologically, the removed tissues showed varying degrees of inflammatory changes and evidences of destruction of the epithelial elements of the glands. Strangely, in a considerable percentage of all cases of acute thyroiditis that we have examined there was been a history of recent mouth or pharyngeal infection.

In the cases in which operation was performed, sufficient time had elapsed between the onset of the disease and the date of operation possibly to account for the absence of bacteria in the removed tissues. However, we have no evidence that they had been present at any time.

Included in this report are 7 cases of acute thyroiditis, 3 cases of migratory thyroiditis and 1 of struma lymphomatosa (Hashimoto's struma). No patients with suppurative thyroiditis, Riedel's struma or chronic inflammatory changes associated with the degenerative changes of long-standing colloid and adenomatous goiter are included, nor are the cases of toxic diffuse goiter with lymphoid hyperplasia included. Patients with "migratory thyroiditis" described by one of us¹ are included.

Material for this article was drawn from the thyroid service at King County Hospital and from private practice.

Dr. H. Sidney Newcomer and Mr. P. A. Freeman of E. R. Squibb & Sons and Dr. George R. Hazel and Mr. L. C. Beck of Abbott Laboratories supplied the thiouracil.

1. King, B. T.: Thyroiditis, *West. J. Surg.* 41: 391 (July) 1933.

The diagnosis of acute thyroiditis is purely a clinical one. Microscopic examination of the gland is rarely possible and the taking of a biopsy specimen entirely unwarranted from a purely diagnostic standpoint. The disease is usually of more or less sudden onset, occurring in a previously normal gland or one slightly enlarged. We have not seen it develop in a previously existing goiter of any type. It is associated with slight to moderate enlargement of the thyroid gland, which is usually quite tender and frequently painful. The gland is quite hard. Patients often complain of some pain on swallowing or turning the head. They discover that the gland is tender to touch. They complain of fatigue, lassitude, weakness, nervousness and not feeling well. The temperature usually ranges from 99 to 102 F. A few have been afebrile. The highest temperature associated with any patient we have examined was 105 F. Incidentally, this patient had the largest gland we have seen associated with the disease. The basal metabolic rate is usually slightly above normal. In none has it been above a plus 20 per cent. In many particulars the disease resembles mild hyperthyroidism and can easily be mistaken for it except for tenderness and fever. It also does not respond to Lugol's solution. Frequently there is an elevation of the number of white blood cells.

Migratory thyroiditis is no doubt the same disease as the more commonly described type of acute thyroiditis and was so designated because it varies from the usual type in one particular: It usually begins in the upper pole of one or the other lateral lobes and progresses by extension to involve the entire gland. The time required for involvement of the whole gland varies from a few days to three weeks. Prior to the present reported group of cases we had seen no case of migratory thyroiditis in which the entire gland did not become involved in the swelling and tenderness.

In 3 of the 11 cases here reported there was migratory thyroiditis, in 1 of which at the time of examination it had extended so that the entire gland was involved. In the second case of this classification the drug was not tolerated; it had to be discontinued, and the process went on to include all of the gland. Case 9 in the series was of one week's duration at the time of examination. The right lobe was more than twice the size of a normal lobe, quite apparent to casual inspection and very tender and hard. The isthmus and left lobe were normal in size and consistency and not tender. The patient had an elevation of temperature and white blood cell count plus a moderate elevation of the basal metabolism and the usual general symptoms of the disease. She was promptly given thiouracil in the usual dosage. In one week she was symptom free except for the enlarged and hard right lobe. The process had not extended to the isthmus or the left lobe. The involved lobe has now returned to a normal state in a period of four weeks. This is the only time we have seen acute thyroiditis limited to one lobe and believe it is due to the action of thiouracil.

Of the 11 cases so diagnosed and treated with thiouracil, 8 may be placed in one category. In all 8 patients the process was three weeks or less in duration. All were symptom free in one week, and in all the enlargement has completely disappeared. In case 9, 1 of those with migratory thyroiditis, the drug was not tolerated and it had to be discontinued. Little benefit resulted.

Of the remaining 3 patients who did not respond to the drug, 1 had previously been given a diagnosis of toxic goiter and had taken 10 drops of Lugol's solution

three times daily for three months. The history seemed to us to warrant a diagnosis of acute thyroiditis. She has made little improvement on thiouracil and we now know that our diagnosis was incorrect.

Patient 10 had been treated five months previously with x-rays, receiving a total of 1,800 roentgens, and was past the active inflammatory stage. She still has a rather large hard gland that is quite fixed. Three weeks' treatment with thiouracil has caused no appreciable change in the condition, possibly because of the changes induced by x-rays and possibly because the acute stage of the disease is past and the structural changes in the gland are now irreversible.

Patient 11 gave a history of having been previously given a diagnosis of toxic goiter and treated with Lugol's solution 10 drops three times daily for three months. There had been no improvement in the symptoms when we examined her and the history seemed to warrant a diagnosis of acute thyroiditis. She was put on 0.2 Gm. of thiouracil twice a day for a week and then once daily for two weeks. She received no benefits and there was no change in the size of the gland. Subsequently she was operated on and microscopically proved to have Hashimoto's struma. Microscopic sections showed large areas of dense lymphoid tissue with degenerating and disappearing acini scattered throughout. There were columnar epithelial cells showing evidence of hyperplasia. We do not know whether this hyperplasia was created by the use of thiouracil for a month or whether it was a part of the original pathologic change in the gland, but the overall picture of the microscopic slides as well as the gross specimen was that of a mild degree of Hashimoto's struma. It is interesting to note that in this 1 case of Hashimoto's struma, which is the only one we have treated with thiouracil no clinical improvement took place. This fact offers additional support to the contention that Hashimoto's struma is in no way related to acute thyroiditis.

Of the 8 patients cured, 1 deserves especial mention because of certain features. This patient's symptoms were the most severe and she had the highest temperature, 102 F. at the time of our examination, the highest white cell blood count and basal metabolism rate, and the largest gland of any of the cases here reported. She stated that the temperature had been over 103 F. She had taken Lugol's solution for three weeks without benefit when referred to us. In one week on 0.2 Gm. of thiouracil three times a day she returned with the unused portion of the drug stating that she was perfectly well and was returning the medicine in the hope that we might use it with equal benefit for some other person similarly afflicted. However, she returned in another week stating that she was not so well; that the symptoms had all recurred in milder degree. Two weeks' additional treatment with smaller doses sufficed to produce a complete cure. The gland has subsequently returned to normal size and consistency and functionally appears to be normal.

CONCLUSION

If the patient is seen and treated during the early stages of the disease, we believe that for practical purposes thiouracil may be considered a specific in acute thyroiditis.

We do not know if others have used thiouracil in the treatment of acute thyroiditis and make this report in the hope that others will use it and report their experiences.

Medical and Dental Building.

PENICILLIN TREATMENT OF ACUTE
PUERPERAL MASTITISTWENTY-FOUR CASES TREATED WITHOUT
ABSCESS FORMATIONCAPTAIN C. P. HODGKINSON
ANDCAPTAIN REUBEN E. NELSON
MEDICAL CORPS, ARMY OF THE UNITED STATES

In acute puerperal breast infections the period of cellulitis preceding abscess formation is short, and a more satisfactory treatment than incision and drainage of the resulting abscess is desirable. Although the incidence of acute puerperal mastitis is not high, the percentage going on to abscess formation is considerable. Using standard methods of treatment, McIntosh¹ showed that approximately 18.7 per cent went on to suppuration under good hospital management. Elward and Dodek,² McIntosh¹ and more recently Harvey, Spindler and Dowdy³ reported a sharp reduction in the incidence of abscess formation when small doses of roentgen therapy were used. Sulfonamide therapy has apparently failed to achieve the clinical improvement expected, probably because of the relative ineffectiveness of such drugs on staphylococcal infections. Penicillin, a more energetic drug, offers a new method of treatment.

PENICILLIN AS RELATED TO ACUTE
PUERPERAL MASTITIS

The bactericidal action of penicillin is selective. Among the organisms found to be particularly susceptible to penicillin are various streptococci, staphylococci, pneumococci, the clostridium group (especially *Clostridium welchii* and *Clostridium septicum*), gonococci, meningococci and, in addition, certain spirochetes and Actinomyces.⁴ Bacteriologic studies have shown that most acute puerperal breast infections are staphylococcal in origin. The clinical course of acute mastitis is characterized by a variable but usually short period of cellulitis followed promptly, as the case may be, by abscess or resolution. Once an abscess has formed, penicillin will not replace adequate incision and drainage. Ambitions to limit breast infections to the cellulitis stage with penicillin therapy must involve early initiation of treatment before the lytic action of the bacteria results in suppuration, when the process becomes irreversible.

RESULTS WITH PENICILLIN THERAPY

Since August 1944, 24 patients suffering from acute puerperal mastitis have presented themselves for treatment at Fitzsimons General Hospital. The average time of onset for the group was twenty-three days post partum, while the duration of illness was at least twenty-four hours. The clinical history in each case was essentially the same: sudden onset of pain in the breast, followed shortly by chills and fever. The patients were acutely ill with temperature elevations as high as

106 F., with corresponding elevations in the leukocyte and neutrophil counts. Examination on admission revealed the involved breast to be enlarged and tender, and usually a mass was found beneath an area of erythema. Occasionally the involvement was diffuse. On admission a conservative program using intramuscular penicillin was instituted in all cases. It was quickly recognized that the usual protracted clinical course was altered. Symptomatically the patients rapidly improved. All patients were afebrile within sixty hours, and the area of induration progressively lost its tenderness and diminished in size until at the time of discharge it was seldom palpable. In several instances a small mass remained which had apparently been sterilized. Recurrence of symptoms failed to develop in any case. Abscess formation was prevented in all cases and the period of hospitalization, averaging six days, was shortened.

FIVE DAY PLAN OF TREATMENT

The course of treatment used was as follows: complete bed rest until the temperature was normal, application of ice bags, and support by breast binder. The breasts were not pumped. Penicillin was administered intramuscularly in doses of 25,000 Oxford units every three hours for seventy-two hours, then 15,000 Oxford units every three hours for forty-eight hours. If the breasts were lactating, inhibition was facilitated by using diethylstilbestrol in doses of 5 mg. three times daily until a total of 40 mg. had been given. Diet and fluids were permitted as desired. All patients were discharged between the fifth and eighth days.

COMMENT

In adapting penicillin to the treatment of breast infections an understanding of the indications, contraindications and limitations of its usefulness are essential. Several factors peculiar to this type of infection appear important.

Sulfonamide Therapy.—When there was a scarcity of penicillin there was a general tendency to use it in the treatment of infections after one of the sulfonamides had failed. For excellent reasons, sulfonamide drugs are used in the puerperal state, both to prevent and combat infectious processes, an example being the use of sulfathiazole cream for cracked and fissured nipples. Although there are no specific reports available concerning the effectiveness of sulfonamide therapy in the treatment of breast infections, undoubtedly it is widely used today. Of 16 patients treated with drugs of this group during the cellulitis stage, the last 4 patients were subsequently treated with penicillin and quickly recovered. Twelve of the patients were seen before penicillin became available, and 9 required incision and drainage of an abscess. The time per patient when incision and drainage were necessary averaged 50.7 days from the onset of the infection to complete healing of the wound. From the results obtained through its use in this small series of cases, it is our impression that sulfonamide therapy is relatively ineffective in the treatment of puerperal mastitis. Early institution of penicillin therapy, without a trial of sulfonamide administration, is desirable.

Nursing State.—Acute puerperal mastitis finds its maximum incidence during the first three weeks of the postpartum period and in relation to the weaning

1. McIntosh, Harriet C.: Roentgen Treatment of Puerperal Mastitis, *M. Clin. North America* 25: 641-647 (May) 1941.

2. Elward, J. F., and Dodek, S. M.: Roentgen Therapy in Acute Puerperal Mastitis, *Radiology* 34: 166-170 (Feb.) 1940.

3. Harvey, R. A.; Spindler, H. A., and Dowdy, A. H.: Roentgen Therapy as an Adjunct in the Management of Acute Postpartum Mastitis, *Surg., Gynec. & Obst.* 80: 396-403 (April) 1945.

4. Penicillin, United States War Department, Technical Bulletin (11B MED 7), Washington, D. C. Government Printing Office, Feb. 12, 1944.

process. Careful supervision during these periods is important, as was recently stressed by Macpherson.⁵

A controversial question concerns the wisdom of continuing lactation after the breast infection has been controlled. With penicillin therapy it is possible to maintain lactation through and following the infection. That this is not desirable is illustrated by 3 of our patients who gave the history of having received penicillin for a minor breast infection during their immediate postpartum period. All apparently recovered and continued to nurse their babies after going home. When first seen by us approximately two weeks later, each had developed a severe mastitis in the contralateral breast, which responded well to the penicillin program herein described.

Dosage.—A factor of major importance in the treatment of staphylococcal infections in general is adequate dosage of penicillin. The staphylococcus notably becomes penicillin fast under inadequate dosage.⁶ The dosage used in the present series of cases has been sufficient. Clinical remission is apparently complete in most patients after sixty hours of treatment. Hence it is felt important to continue the medication until the full course has been administered to obviate the possibility of reactivation because of bacterial resistance to penicillin. The tapering off period of 15,000 Oxford units every three hours for the last two days of treatment is good insurance against this complication.

Breast Abscess.—Systemic penicillin may be of value in cases of frank abscess formation by preventing the extension of infection to adjacent lobes. Fraser⁷ reported 15 cases treated by aspiration and instillation of penicillin into the abscess cavity, with resolution without drainage in only 3 cases. He suggested using penicillin for its systemic effect at an earlier stage, feeling that local treatment offered little. Penicillin will not replace adequate incision and drainage of an abscess.

CONCLUSIONS

1. Twenty-four patients suffering from acute puerperal mastitis were treated with penicillin. All resolved without abscess formation. Eight hundred and forty thousand Oxford units was administered to each patient under a five day plan of treatment consisting of 25,000 Oxford units every three hours for seventy-two hours, then 15,000 Oxford units every three hours for forty-eight hours.

2. Sulfonamide therapy, because of its relative ineffectiveness, is not recommended as a substitute for early institution of penicillin treatment in acute staphylococcal puerperal mastitis.

5. Macpherson, A. I. S.: *Acute Puerperal Breast Abscess: Clinical Observations on Its Etiology and Suggested Method of Treatment*, Year Book of Obstetrics and Gynecology, 1944, Greenhill, Year Book Publishers, Chicago.

6. Rammelkamp, C. H., and Maxon, T.: *Resistance of Staphylococcus Aureus to the Action of Penicillin*, Proc. Soc. Exper. Biol. & Med. 51: 386-389 (Dec.) 1942. Lyons, C.: *Penicillin Therapy of Surgical Infections in the U. S. Army*, J. A. M. A. 123: 1007-1018 (Dec. 18) 1943.

7. Fraser, D. B.: *Local Treatment of Breast Abscess with Penicillin*, Brit. M. J. 1: 523-524 (April 15) 1944.

Effect of War and Depression.—The status of the civilian changes during war to a part time soldier. Due to well entrenched habit formation, he is either consciously or unconsciously trying to lead a normal life, but at any time he may find himself the object of an attack or playing an active part in meeting enemy attack. In addition, he is constantly confronted by necessary war regulations which restrict his peace-time civil liberties.—Davis, John E.: *Principles and Practice of Rehabilitation*, New York, A. S. Barnes & Co., Inc., 1943.

PREVENTION OF INFECTIOUS HEPATITIS WITH GAMMA GLOBULIN

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In January 1945 Stokes and Neefe¹ published the first report of the use of human gamma globulin in the prevention of infectious hepatitis. Results indicated that this prophylactic measure was effective and that the use of this substance in infectious hepatitis compared favorably with its use in measles.

In the present report it is our purpose to describe another instance of the effective use of gamma globulin as a prophylactic measure in an institutional epidemic of infectious hepatitis. The outbreak to be described occurred in a Catholic home for children in New

TABLE 1.—*Grouping of Institutional Population*

Group	Number in Group	Basis of Selection	Inoculated
A	97	Susceptible.....	Yes
B	153	Susceptible.....	No
C	47	"Immunes" (previously ill).....	No
D	39	Adults.....	No

TABLE 2.—*Dosage Employed*

Child's Weight, Pounds	Gamma Globulin Injected, Cc.
40-70.....	5
80-110.....	8
120+.....	10

TABLE 3.—*Comparison of Rates in Groups A and B*

Group	Number	Jaundice		? Hepatitis	
		Cases	Per Cent	Cases	Per Cent
A (inoculated).....	97	2	2	6	6
B (control).....	153	36	23	17	11

Haven.² This home had on Jan. 20, 1945 a population of 299 children (90 per cent of whom were between the ages of 6 and 16) and 39 adults. During the period between Nov. 5, 1944 and April 27, 1945, 53 cases of infectious hepatitis with jaundice and 56 cases of questionable hepatitis without clinical jaundice occurred at the home (chart 1). In the latter group of non-icteric cases the diagnosis was often somewhat indefinite. It was based on a sequence of symptoms similar to those usually found in the early stage of hepatitis with jaundice; namely, an acute onset with fever of 101-103 F., headache, nausea and vomiting. Generalized aches and pains were common, and pain in the abdomen was present in about half of these cases. The average duration of fever in these nonicteric cases was two days

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This investigation was aided in part by the Commission on Neurotropic Virus Diseases, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, Preventive Medicine Service, Office of the Surgeon General, U. S. Army.

1. Stokes, J., and Neefe, J. R.: *The Prevention and Alleviation of Infectious Hepatitis by Gamma Globulin*, J. A. M. A. 127: 144 (Jan. 20) 1945.

2. This work was made possible by the cooperation of Sister Mary Catherine Teresa and members of her staff at the St. Francis Orphan Asylum, New Haven. Dr. Joseph D'Amico of New Haven also assisted.

and they were kept in the infirmary about a week. The jaundiced patients were kept in the infirmary for two to three weeks.

There were no seriously sick patients in this outbreak. Complications were infrequent and occurred only in the icteric patients, consisting of atypical pneumonia in 1 child and generalized acute dermatitis in 2 children. One child had a relapse two and one-half weeks after discharge from his first admission to the infirmary.

Both icteric and nonicteric cases were well scattered through all the juvenile age groups represented at the institution, with no particular concentration among boys or girls. Only 1 adult contracted the disease. The institutional outbreak was coincidental with an increase in prevalence of hepatitis in the local urban population of New Haven as well as in other areas in the state of Connecticut. This was also largely a juvenile disease, for of the cases reported to the Health Department of the City of New Haven (exclusive of those at the asylum described in this paper) about 90 per cent were in children between the ages of 2 and 17 years;³ and of the cases reported during the same period from the practice of physicians in an up state community, this same juvenile prevalence accounted for about 70 per cent of the cases.⁴

The outbreak at the institution was well under way in mid-January, when the decision to test the prophylactic value of gamma globulin was first considered. For this purpose the institution's population was divided on January 27 into four groups (table 1). Primarily, 47 children (group C) who already had had hepatitis or an illness suggestive of hepatitis were eliminated from the experiment as possible immunes. Six of these children in the latter category developed a second illness on or after January 27 with jaundice in 3 and symptoms of hepatitis without jaundice in 4. Adults (group D) also were eliminated. Of the remainder, who presumably represented the susceptible population of the institution, every second and every third child was alternately selected from the alphabetical list for inoculation, giving a ratio of about 38 per cent of the susceptibles to be inoculated. They numbered 97 children and are designated as group A. The remaining 155 susceptible children (group B) were kept as uninoculated controls.

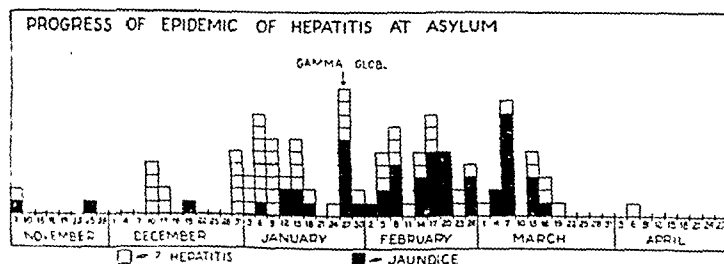


Chart 1.—The outbreak of infectious hepatitis in which gamma globulin was given as a prophylactic measure on January 27.

Gamma globulin⁵ was inoculated intramuscularly on Jan. 27, 1945 into the 97 children in group A. Doses used are listed in table 2. This amount, which ranges from 0.06 to 0.12 cc. per pound, was less by 50 to 75 per cent than that used by Stokes and Neeffe,

who employed 0.15 cc. per pound of body weight. No untoward reactions were encountered in the 97 children inoculated.

Rates at which infectious hepatitis developed in the four groups both before and after the inoculation appear in chart 2. In the inoculated children (group A) 2 cases

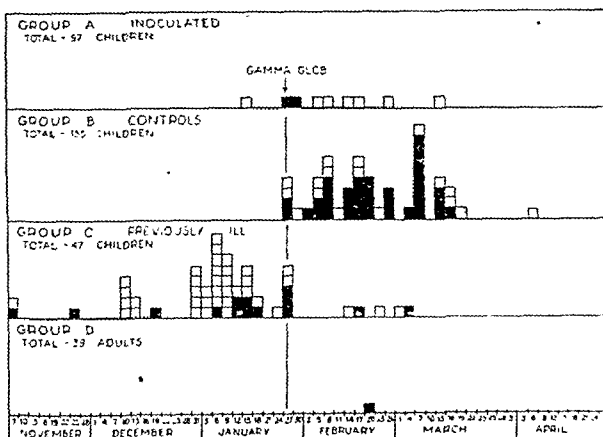


Chart 2.—Rates at which infectious hepatitis developed in four groups of children during an epidemic of hepatitis at an asylum. The open squares indicate cases without jaundice. The black squares indicate cases with jaundice.

of hepatitis with jaundice occurred within six days of the inoculation, and subsequently there were 6 questionable cases of hepatitis (without jaundice) in this group. A comparison of this result with that in the susceptible (group B) controls appears in the two upper panels of chart 2 and in the results listed in table 3. The reduction of cases with jaundice in the group inoculated with gamma globulin is statistically significant. The data do not furnish evidence either for or against the attenuation of the disease by the inoculation.

COMMENT

These results indicate a sharp difference in rate at which jaundice occurred in a group of children inoculated with gamma globulin during an institutional outbreak of infectious hepatitis as compared with a larger group of uninoculated controls in the same institution.

This result was achieved in an outbreak of the juvenile form of disease, which is the common form of the disease in this country.⁶

There may be a number of different types of infectious hepatitis, which represent members of one large general group, as well as a number of varieties of the related condition known as homologous serum jaundice.⁷ It is impossible to say, therefore, whether all of them would respond to the prophylactic injection of the concentrated immune bodies which are contained in gamma globulin.

Infectious hepatitis is a disease which lends itself rather well to the use of prophylactic injections in view of its long incubation period, averaging presumably about twenty-five days. This allows a period of about seventeen days after exposure in which the administration of antibodies is effective in prevention.

3. These figures are for the period of January to May 1945 and were supplied by Dr. Joseph I. Linde, health officer of New Haven.

4. Dr. James J. Derwin, Winsted, Conn., supplied these figures, which cover the period of January to April 1945.

5. The gamma globulin employed in this study was obtained through the Office of the Surgeon General, United States Army. Products of different companies were included, with lot numbers 3-1 and 3-2, 4-1 and 4-2 for the product of company S; and A9183 and B647 for company C.

6. Blumer, G.: Infectious Jaundice in the United States, *J. A. M. A.* 81: 353 (Aug. 4) 1923. Molner, J. G., and Kasper, J. A.: An Outbreak of Jaundice in Detroit, *ibid.* 110: 2069 (June 18) 1938. Molner, J. G., and Meyer, K. F.: Jaundice in Detroit, *Am. J. Pub. Health* 30: 509 (May) 1940. Norton, J. A.: Acute Infectious Jaundice, *J. A. M. A.* 113: 916 (Sept. 2) 1939.

7. Paul, J. R.; Havens, W. P., Jr.; Sabin, A. B., and Philip, C. H.: Transmission Experiments in Serum Jaundice and Infectious Hepatitis, *J. A. M. A.* 128: 911 (July 28) 1945.

CONCLUSIONS

1. The effectiveness of intramuscular injections of gamma globulin was tested as a prophylactic measure in an institutional outbreak of infectious hepatitis.

2. In this outbreak 53 cases of hepatitis with jaundice and another 56 cases of questionable hepatitis without jaundice occurred in a population of about 300 juveniles.

3. Ninety-seven children were given gamma globulin, and the subsequent case rate of hepatitis with jaundice was compared with that in 155 children who were left as uninoculated controls. The case rate for jaundice in the controls was about ten times that noted among those who were inoculated.

4. The only 2 cases of jaundice which did occur in the inoculated children appeared within six days of the administration of gamma globulin.

5. The average dose in this experiment was approximately 0.08 cc. of gamma globulin per pound of body weight given intramuscularly. It seems to have been as effective as the larger dose of 0.15 cc. per pound used by Stokes and Neefe.

6. No evidence is brought forward in this experiment either for or against the fact that the disease might have been attenuated by the injections.

7. It appears that gamma globulin is an effective prophylactic measure against infectious hepatitis when given in the incubation period, preferably earlier than six days before the onset of symptoms. This last statement is based on the study herein reported and on the original observations of Stokes and Neefe.

ADDENDUM

Since this paper was accepted for publication, another and similar report by Gellis, Stokes and others⁸ has appeared. In it the results of a study carried out among troops in the Mediterranean theater in the fall of 1944 are listed. With a dose of gamma globulin of 10 cc. per man (about half that originally used by Stokes and Neefe) success in preventing infectious hepatitis was achieved.

Clinical Notes, Suggestions and New Instruments

COLCHICINE IN ACUTE MYELOGENOUS LEUKEMIA

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The effect of colchicine in arresting mitosis of both animal and plant cells has long been known. As would be expected, rapidly growing malignant tissue is more susceptible to its effect than normal tissue. Many investigators have reported on the effect of colchicine on tumor tissue in culture and in experimental animals. On the basis of this effect on malignant cells in vitro, Dr. O. H. Perry Pepper suggested colchicine in the case of acute myelogenous leukemia herewith reported. He had tried it in 2 acute cases, in 1 of which it had no apparent effect. In the other there was a complete remission, such as sometimes occurs spontaneously, whereupon the drug was discontinued. When relapse occurred the drug was resumed, but the further course of the disease was as would have been expected without the drug.

Two references to the use of colchicine in leukemia were found in the literature. Bernard¹ gave 1 mg. of the drug by injection into the marrow twice a week in a case of acute myelogenous leukemia for a total of six doses, whereupon the

patient died. There was apparently some modification of the blood picture but not of the course of the disease. In the other case,² of chronic myelogenous leukemia, the drug was administered by mouth without benefit.

In the case reported here, when colchicine was begun the disease was acute and the symptoms were of short duration. The progress of the disease soon became less rapid, then favorable. For some months the patient showed the picture of an aleukemic leukemia (though still with a preponderance of very young forms). After losing 58 pounds (26 Kg.) there was progressive gain in weight and strength before she finally slipped into the terminal state of the disease. Colchicine was continued through the course of the disease, certainly without harmful effect and perhaps with actual though temporary benefit. The spleen was not apparently enlarged until shortly before death and then was only 1 cm. below the costal margin, nor was the white blood cell picture what would have been expected if the disease had changed from the acute to the chronic form.

REPORT OF CASE

Mrs. B. N., aged 55, about Dec. 20, 1943 began to notice irregular fever, malaise, painful swollen gums and submental and cervical adenopathy. She had had a slight tendency to spontaneous subcutaneous hemorrhage all her life (a tendency apparently inherited by her daughter). For six months before the symptoms developed, this tendency was slightly, but increasingly, more evident than before.

Blood counts had been done at various times during the preceding ten years and no abnormal findings noted. The last previous one was eight months before, and this showed white blood cells 3,500, polymorphonuclears 85 per cent, lymphocytes 15 per cent.

Examination a few days after onset showed decidedly swollen, spongy and tender gums, and cervical adenopathy, together with swelling and tenderness of the submental and parotid lymph nodes. The spleen and liver were not enlarged, and the examination was otherwise essentially negative except for several subcutaneous hemorrhages.

On December 27 the blood showed hemoglobin 11.2 Gm., 67.5 per cent, red blood cells 3,960,000, white blood cells 29,000, with 95 per cent myeloblasts and promyelocytes. A diagnosis of acute leukemia was made. (This and all subsequent counts were done by Dr. Thomas A. Cope Jr.) A count on December 30 showed white blood cells 52,700, with 83 per cent myeloblasts and promyelocytes. On Jan. 10, 1945 the hemoglobin had dropped to 8.2 Gm., 49.5 per cent; red blood cells 2,950,000. The white blood cell count had risen to 110,400, with 90 per cent myeloblasts and promyelocytes. The patient was becoming weaker and her gums were bothering her more. Dr. O. H. Perry Pepper was called in consultation at this time. He made a slide and confirmed the diagnosis of acute myelogenous leukemia, noting the almost complete lack of platelets, and suggested that colchicine be given. This drug was given in tablets of 0.5 mg. three times a day until there was some diarrhea, and then after a two day interval twice a day, until death supervened thirteen months later. Any attempt to increase the dosage seemed to be followed by diarrhea, but this dosage was well tolerated.

Following the institution of colchicine therapy on January 11 the white blood cell count rose on Jan. 20, 1944 to 145,000, with 51 per cent myeloblasts and promyelocytes and 29 per cent myelocytes. On February 14 the blood count showed hemoglobin 6.1 Gm., 37 per cent; red blood cells 1,880,000, white blood cells 4,900, myelocytes 10 per cent, stabs 22 per cent, segmented 43 per cent, lymphocytes 25 per cent. The mouth and the lymph nodes were immensely better. The fever was nearly gone, and the patient felt greatly improved, though weak. Two blood transfusions totaling 750 cc. helped to improve the anemia. On March 4 the blood showed hemoglobin 9.9 Gm., 60 per cent; red blood cells 3,660,000, white blood cells 2,400, lymphocytes 10 per cent, stabs 6 per cent, unidentified

8. Gellis, S. S.; Stokes, J., Jr.; Brother, G. M.; Hall, W. M.; Gilmore, H. R.; Beyer, E., and Morrissey, R. A.: Use of Human Immune Serum Globulin (Gamma Globulin) J. A. M. A. 128: 1062 (Aug. 11) 1945.
1. Bernard, J.: Leucémie aiguë: Essai de traitement par les injections intramédullaires de colchicine, Sang 13: 434, 1939.

2. Paul, J. T.; Brown, W. O. and Limarzi, L. R.: The Effect of Colchicine on Chronic Myeloid Leukemia, Am. J. Clin. Path. 11: 210, 1941.

cells resembling lymphocytes 84 per cent. The patient was able to be up and dressed every day at this time. Further blood transfusions of 500 cc. each were given once each in March, April and May. The mouth no longer bothered her. Her teeth, however, were still somewhat loose. In March, following cleansing by an otologist, there was bleeding from one ear which was hard to control. There was also severe dysphagia for some days, probably from a deep hemorrhage, though no lesion was found. On April 19 she was suffering much pain from an inflamed ulcerated hemorrhoid. The white blood cells at this time numbered 17,700, with 87 per cent myeloblasts and promyelocytes. On May 9 the blood showed 27,600 white blood cells, with 95 per cent myeloblasts and promyelocytes. Then a mass of glands in the right axilla developed and suppurated, being first ready for aspiration on May 20. The bleeding tendency rendered incision unsafe. The pus showed nonhemolytic *Staphylococcus aureus*. At this time the white blood cells numbered 76,900, with 98 per cent myeloblasts and promyelocytes. Blood transfusion was given two days before the abscess was aspirated and seemed to help in the suppuration. On June 19 the white blood cells numbered 31,800, with 90 per cent myeloblasts and promyelocytes. On August 9 the white blood cells numbered 10,900, with 37 per cent myeloblasts and promyelocytes. On August 14 cellulitis developed inside the right nostril, with swelling of the face. This was controlled with the help of penicillin. Later in the month an ischio-rectal abscess developed and ruptured spontaneously, with pus containing a hemolytic streptococcus and blood clots. Penicillin was not given for this.

In September the weight of the patient had dropped from 138 to 80 pounds (63 to 36 Kg.), but she felt fairly well. Her teeth, which had been loose, were now firm and her gums were normal. Fever was no longer present. The weight and strength steadily improved during the next three months, so that she regained 15 pounds (7 Kg.). There were two further episodes of infections, a paronychia which required penicillin and another pararectal abscess, which was also treated with penicillin and which ruptured spontaneously. No transfusions were given after May, but on November 17 hemoglobin was 10 Gm., 61 per cent, red blood cells numbered 3,470,000, white blood cells 7,300, myeloblasts 46 per cent, stabs 2 per cent, polymorphocytes 5 per cent, lymphocytes 15 per cent.

In the latter part of December 1944, a year after onset of acute symptoms, the patient developed nausea and anorexia, which persisted until death. It was suspected that hidden purpuric hemorrhage was a factor in this. More subcutaneous hemorrhages were noted, and she began to pass bloody urine about Jan. 18, 1945. The blood count on January 22 showed hemoglobin 6.5 Gm., 39 per cent, red blood cells 3,160,000 and white blood cells 90,200, of which 90 per cent were myeloblasts and promyelocytes. Transfusion of 500 cc. was given on January 23, but bleeding continued. This was the first transfusion since May. The blood count on January 29 showed hemoglobin 7.5 Gm., 45 per cent, red blood cells 3,170,000, white blood cells 162,000, myeloblasts and promyelocytes 81 per cent, myelocytes 9 per cent. Another blood transfusion of 500 cc. was given on February 1. Hematuria ceased two days later. Then for a week there was no bleeding, but hematuria recurred and continued until the day before death. There was also a nosebleed, which was controlled by packing once with epinephrine. The blood count on February 13 showed hemoglobin 5.5 Gm., 33 per cent, red blood cells 2,500,000, white blood cells 295,000, myeloblasts and promyelocytes 93 per cent, myelocytes 4 per cent. Further transfusions seemed useless, the rapid rise in the white count apparently being the terminal outpouring of these cells. Slides were examined by Dr. L. M. Tocantins on February 16, who reported "There were great numbers of leukocytes, a great majority of which were primitive cells (probably myeloblasts); some of these cells had Auer bodies. No platelets were seen in this smear. The red blood cells were slightly larger than normal. The blood changes are those observed in the terminal acute stage of a myeloid

leukemia." The patient became progressively weaker; cachectic edema developed, and on February 24 she lapsed into coma, dying a few hours later. No autopsy was performed.

SUMMARY

Colchicine was administered to a patient with acute myelogenous leukemia and continued until death thirteen and one-half months later. The condition did not proceed to its usual rapid termination, nor did it assume the typical characteristics of chronicity. The downhill course gradually slackened through eight months, and after a weight loss of 58 pounds (26 Kg.) there was a three month period of improvement during which 15 pounds (7 Kg.) was regained. Transfusions were unnecessary for an eight month period. The course of the disease was punctuated by the usual pyogenic infections, three of which required penicillin and three of which suppurated. A probable lifelong thrombocytopenia was apparently accentuated by the leukemia. There was nothing unusual about the terminal clinical and hematologic picture. No conclusions can be drawn regarding the beneficial effect of colchicine in this case, but further trial of the drug for the condition seems justified.

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RECURRENCES OF PNEUMOCOCCIC MENINGITIS

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Craddock and Bowers¹ described a patient having repeated attacks of pneumococcic meningitis. The patient of Hopkins and his co-workers² had three acute episodes of sinusitis complicated each time by pneumococcic meningitis. Recovery followed sulfonamide medication and treatment of the sinusitis.

The patient who is the subject of the present report has been under the care of Dr. E. W. Westland in the West Suburban Hospital. When first seen she was 7 years old and had always been well since an uncomplicated skull fracture two and one-half years before. Within four years she has been admitted to various hospitals for five acute attacks of pneumococcic meningitis. The organism isolated from the spinal fluid in three attacks has been type XXI. There is no known focus in the ears, respiratory tract or the accessory sinuses. X-ray examinations of the lung, skull and sinuses have been negative. In each recurrence the episode has been primary, uncomplicated by involvement of any other part of the body. In each attack the patient has responded to sulfonamides and antipneumococcus serum. The symptoms have always been violent with coma, convulsions, headache, high fever and vomiting of sudden onset.

The meningitis in each instance has recurred suddenly and violently. Within five hours after a rigor, headache and projectile vomiting she is in coma with convulsive seizures. The leukocyte count in the blood and spinal fluid rises swiftly. The spinal fluid sugar falls. Responding rapidly to type specific antipneumococcus serum and small intravenous doses of sulfonamides, she soon recovers. In her third attack she was treated in a small hospital with limited laboratory facilities. She received no serum but recovered after small doses of sulfonamide. In her fifth episode she was treated in the Michael Reese Hospital by Dr. Abraham Levinson. On this fifth admission the pneumococci in the spinal fluid were reported to be type XV. She recovered after sulfonamide had been administered for two days.

Between her first and second attacks she was apparently well for three months; between the second and third attacks, six months; between the third and fourth attacks, eleven months, and between the fourth and last attack, twelve months. The increasing intervals may indicate a rising resistance.

1. Craddock, G. B. and Bowers, R. V.: Recurrent Pneumococcic Meningitis Treated with Sulfapyridine, *J. A. M. A.* **116**: 296 (Jan. 25) 1941.

2. Hopkins, H.; Hatch, L. C.; Schenk, H. P. and Pepper, D. S.: Recurrent Pneumococcic Meningitis Treated with Sulfonamides, *Ann. Int. Med.* **20**: 333 (Feb.) 1944.

The parents of the child refuse to return her for determination of a possible further study of her spinal fluid to determine the possibility of persisting pneumococci in the spinal fluid. It has been suggested that pneumococci may be constantly present in the patient's spinal fluid without giving rise to inflammation or symptoms analogous to bacteriuria without pyuria.³

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THE TREATMENT OF PERIRENAL ABSCESS WITH PENICILLIN

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AND CAPTAIN H. L. EGBERT
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A private aged 30 had been in Africa eleven months at the time of his first hospitalization, which occurred on Sept. 4, 1943 because of malarial fever, estivoautumnal type; acute bronchitis, and chronic acne of a moderately severe nature over the shoulders and thoracic portion of his back. He was discharged to duty as cured of his malaria and bronchitis but without improvement of the acne on Sept. 13, 1943.

He was readmitted to the same hospital in Africa on three occasions after this because of recurrent malaria. These admissions were between Sept. 28, 1943 and Dec. 3, 1943.

During hospitalization following the third admission he continued to have a low grade fever of 99 to 100 F. even though his blood smears were repeatedly negative for plasmodia. He was discharged from the hospital on Jan. 31, 1944, his temperature still varying between 99 and 100 F.

Readmission was necessary on Feb. 4, 1944 because of fatigue, malaise, anorexia, nausea, vomiting and upper abdominal pain. Blood smears for malaria were repeatedly negative, the urinalyses were normal and the blood count showed a normal differential with 9,050 white blood cells and 5,670,000 red blood cells. Agglutination tests for typhoid, typhus, paratyphoid A and B and melitensis were negative. The sedimentation rate was 7 mm. in one hour. Roentgenographic gastrointestinal examination was normal except for pronounced hyperperistalsis. X-ray of the chest and routine examination of the stool were normal. Continuing the low grade fever, he remained in the hospital until April 8, 1944, at which time he was transferred to the United States.

On his way to the United States he was taken from the plane in Puerto Rico and hospitalized one day because of pain in the midportion of the upper abdomen, nausea and vomiting. His temperature was 99.2 F. at the time of his admission and he was released from the hospital twenty-four hours later.

In the United States he remained in a hospital from April 15 to June 17, 1944. Medical, dental and neurologic as well as repeated blood, stool and urine examinations were normal. During this hospitalization he had developed a large furuncle on the dorsum of the lower third of the left thigh, which spontaneously opened, drained and healed under the application of hot moist packs. His temperature during this stay in the hospital varied from normal to 99.4 F.

After a furlough he entered a redistribution station on July 4, 1944 for reprocessing and reassignment. Beginning July 15 he noticed soreness in the left costovertebral angle, which would awaken him at night and for which he would usually get out of bed, walk around and take a smoke in an attempt to be more comfortable. He stated that he was very weak, that slight exercise would produce a very coarse tremor of his hands, and night sweats were a regular occurrence.

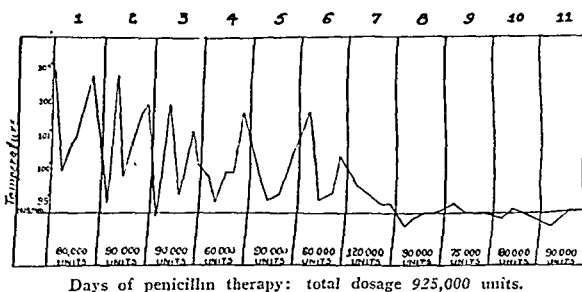
On July 20 he had a severe chill, nausea, vomiting and an increase of the continuous aching in the left costovertebral angle. He was admitted to the A. A. F. Regional Station Hospital at Coral Gables, Fla., July 21. His temperature was 103 F., there was severe pain in the left upper abdomen and back, and an admitting diagnosis of recurrent malaria was made. Repeated blood smears were negative for malarial parasites. Because of the persistent pain in the left costovertebral angle and fever

of from 99 to 103 F., he was seen in consultation by the urologic department on July 28. He had been treated with sulfadiazine from July 24 to July 28 with no improvement in the pain or his fever. There were no urinary symptoms.

At the time of examination the temperature was 102.8 F., he appeared moderately anxious, his tongue was coated and the examination showed that there was muscle guard and tenderness to palpation over the left kidney. A questionable mass could be felt in the left upper abdomen, but because of the muscle guard this could not be definitely established. However, there was visible bulging in the area of the left costovertebral angle and this was decidedly tender. A diagnosis of left perirenal abscess was made. The intravenous urograms revealed an obliteration of the left psoas shadow and a mesial displacement of the upper third of the left ureter with otherwise normal pyelograms and evident good bilateral renal function. The urine was normal except for an occasional pus cell, the white blood cell count was 14,000 and the blood sulfadiazine level was 8.2 mg. per hundred cubic centimeters.

Continuous intravenous penicillin therapy was administered at the rate of 60,000 to 125,000 units every twenty-four hours. His temperature gradually dropped to normal over a period of eight days. The penicillin therapy was continued for two days after the temperature was normal, until a total of 925,000 penicillin units had been administered.

Within forty-eight hours after starting the penicillin therapy the patient felt very much better, muscle guard over the upper abdomen disappeared and there was definite diminution in size of the tender mass in the left costovertebral angle. After



ninety-six hours there was no visible evidence of any mass remaining, and although the temperature ranged between 99 and 101 F. the patient felt perfectly well, in fact, better than he had felt for many months. By the eighth day his temperature was normal and he was free of any signs or symptoms that were present at the time of his admission to the hospital. The patient was discharged to duty as cured on Aug. 27, 1944 after his temperature had been normal and he had been free of any complaints for three weeks. We are in receipt of a communication dated Jan. 15, 1945 (somewhat more than five months after completion of the penicillin therapy) showing that no symptoms referable to a possible recurrence have appeared.

Although we have no proof that free pus was present, all the classic clinical symptoms and findings of perirenal abscess were present. Except for the desire to exploit the value of penicillin, there was no doubt in our minds that incision and drainage were indicated at the time penicillin therapy was begun.

As far as we know, this is the first case treated and cured with penicillin therapy. It naturally provides the interesting speculation that perhaps another heretofore surgical condition has become, in at least certain selected instances, amenable to chemotherapy.

The Average Length of Life.—The average length of life in India is only twenty-seven years, whereas that for Japan is forty-six years, for Great Britain sixty-two years and, for the United States, approximately sixty-two years. Yet, in spite of such high mortality rates and the short length of life, India's population has increased by more than 250,000,000 in the past ninety years.—Simmons, James S., and others: *Global Epidemiology*, Philadelphia, J. P. Lippincott Company, 1944.

3. Herrold, R. D.: Personal communication to the author.

Special Article

THE ORGANIZATION AND RESULTS OF HEALTH MAINTENANCE-CANCER PREVENTION CLINICS

MILDRED W. S. SCHRAM, Ph.D.
Secretary, International Cancer Research Foundation
PHILADELPHIA

In view of the findings in three cancer prevention clinics which have been in operation for from four to seven years, the International Cancer Research Foundation has established in the city of Philadelphia a series of clinics for the conservation of health. This has been done for a five year period on an experimental basis. It might be dubbed a five year plan or even a "noble experiment." In any case Philadelphia will be the laboratory in which data will be gathered on which may be based valid conclusions as to the future of such examining centers. That they are essential to the good health of the nation may be considered as hardly open to question in view of the findings at Selective Service examinations and at recent examinations of school children in Philadelphia. Figures of the latter are sufficiently arresting to warrant quoting here. Of 170,260 pupils examined 68,823 were found normal. Only 40 per cent! Doesn't that give one pause?

Be that as it may, the objective of the present experiment is to provide adequate data for statistical evaluation. Present indications are that there will be about twenty-five hundred examinations a year. From a research point of view, much of the ultimate value of these clinics will be the data accumulated over the years. To this end, especial care has been given to preparation of the forms. All clinics are requested to use these forms to insure uniformity of data.

The clinics do not give treatments. Their one function is examination, with special emphasis on conditions which may lead to cancer. Complete physical examinations are given, including the skin, mouth, tongue, pharynx, larynx, breast, pelvis, rectum and lymph nodes, routine laboratory tests—blood count, urinalysis and Wassermann-Kline tests—and a routine chest film. When special studies are indicated, e. g. cystoscopy, biopsy, or gastrointestinal series, these will be done wherever the examinee or his physician desire.

Whenever there is a positive finding, the examinee is referred back to his physician. If he has no physician he is given a list of names of physicians in his vicinity. If he cannot afford a physician he is given the names of several hospitals, from which he will make his choice. When medical attention of any kind is indicated, a letter is sent to the personal physician noting the findings and advising as to consultation or whatever is relevant. Should the condition be urgent there is a follow-up telephone call within a week or two. If the condition is not serious the follow-up may be deferred for some weeks. A record is kept of what treatment is administered, where, when and by whom. Records will be available to all personal physicians and also, eventually, for studies by those qualified to undertake them.

If the examinee cannot afford to make the usual contribution toward the expenses of the examination, this is adjusted to his ability to pay. Should special studies be required for which he is unable to pay, the foundation will reimburse the institution concerned for the cost of such studies.

ORGANIZATION

The first requisite in undertaking the organization of health maintenance-cancer prevention clinics is enlisting the interest and the cooperation of the county medical society and the hospital in which the clinic is to be held. This having been accomplished, details of procedure and function are next to be considered. A usual query, not infrequently so worded that it becomes almost an objection, is "But how can it be done with the present shortage of physicians and nurses?" The answer is, Yankee-fashion, "Can you not find in your institution one physician who is willing to give two hours a week for this service, or two physicians each of whom will give two hours every other week? And a nurse who will give three hours each week (or, similarly, two nurses to alternate in giving three hours weekly)? That will staff your clinic." It will be a small one, surely; but is it not better to serve a few each week—even 2 a week means 100 a year—than not to start at all? And this much may be said: Once a beginning is made, "it shall follow as the night the day" that the proverbial snowball will have started rolling.

In addition to the physician and the nurse, there will be needed a laboratory technician and the services of the x-ray department to take the routine chest film. If equipment for taking small films is available these suffice, since these routine films are for screening purposes only. If anything suspicious is found, the examinee is referred to his physician for further x-ray studies. You notice that the word "examinee" is used rather than the word "patient." This is done advisedly, since these examining centers are not for those who are ill. They are intended for well folk only. No appointment is given to any one who is under treatment unless his physician sends a written request. Neither are appointments made for children.

As to procedures, these may vary from hospital to hospital. The obvious questions are "Where to hold the clinic? What about the laboratory work?" About location: Our five months' experience indicates that it is decidedly advantageous to hold the clinic within easy reach of the x-ray department. This minimizes confusion and loss of time—and, sometimes, loss of examinees. That is literally true. It "did happen here."

The space that appears best adapted to these examinations seems to be the obstetric or gynecology outpatient department. Here there are scales, small tables to be used while taking the histories, and examining tables.

As to the laboratory technician, having her come to the clinic is by far the most satisfactory as well as the most efficient arrangement.

Any details concerning the examining physician's duties would be superfluous here. Suffice it to say that emphasis is placed on care and thoroughness, however time consuming. In the beginning, the schedule is one examinee per hour. As experience and facility increase,

three examinations can be done in the clinic period of two hours. Under unusually favorable circumstances, when the examining physician is especially able, four are completed without difficulty. When the six month period is up and reexaminations begin, I understand that twice as many can be done in a given time. I cannot speak of this from experience, since our clinics are not yet six months old.

As the number of examining physicians increases, it becomes advisable to have one senior examiner, or supervisor, to whom questions can be referred and who assumes responsibility as to technicians, care of charts and disposition of cases.

The hospital which provides the space also arranges for the services of the nurse. She is paid by the hour. She comes sufficiently in advance of the hour of the clinic to see that examining rooms are in order and to check necessary supplies and equipment, such as the gynecologic tray, the otoscope and the laryngeal mirror. She takes temperatures and weights and gets the examinee ready on the table. Her final responsibility is to leave the room in order. Our experience is that one-half hour before and one-half hour after the clinic suffice.

In order to minimize waiting on the part of the examining physician, the examinee is asked to report three quarters of an hour ahead of the hour scheduled. Thus, for a 4 o'clock clinic he is asked to come at 3:15. This allows time for him to go to x-ray, to make his contribution, to register, to report to the laboratory technician, to be weighed. Also he fills in his "information blank" before the examining physician arrives. This mimeographed copy of the face sheet is given him as soon as he arrives, with the request that he fill in all the spaces and do this between times while he is waiting at x-ray or elsewhere. Some one in charge is careful to check over these sheets before the examinee leaves to make sure that all the information that has been requested is given.

CONDUCTING THE CLINICS

Meeting, registering and steering the examinees, and helping them with the face sheets are minor but important details in the functioning of these clinics. In the hands of gray ladies, nurses' aides or other volunteers they are accomplished with tact and skill.

When the examining physician finds anything which requires medical or surgical care, the usual procedure is for him to tell the examinee to get in touch with his physician in ten days or two weeks. One may ask "Why not sooner?" The reason is simple. Laboratory and x-ray reports are subject to delay, especially under present conditions. Accordingly the practice has been adopted of collecting the charts and their laboratory and x-ray findings one week after the examination. Thus charts and findings of examinations made today will be called for and taken to the clinics office one week from today.

In the clinics office the charts are copied and the laboratory and x-ray reports are entered in their proper places. Then, if the examinee is to be referred to his physician, a letter is written and a mimeographed postcard enclosed for the latter's reply. Two carbons are made of each letter. Thus there are two complete sets of each examinee's record. The carbon copy is filed

in the central office, the original, with all report slips attached, in the hospital in which the examination was made.

As to record keeping, a 3 by 5 white index card is made for each examinee. On this are entered the date of the examination, the code letter of the institution in which the examination was made, the name of the examinee's physician and the date on which a letter was sent to him; and space is left for the date on which he reports to us.

Another 3 by 5 index card is typed, this one with the name, address and telephone number of the physician to whom an examinee is referred. The name of the examinee also is given. When reports are received the date, the examinee's name and the substance of the report are entered on the back of the card. Two colors are used for the physician's cards: one is buff, for the usual; the other, aqua, for cases such as dilation and curettement or biopsy, on which an early report is desired.

Before it is filed, each card is flagged to indicate when it is to receive attention. The color of the flag tells us when a reply from a physician is overdue and when an examinee should be notified concerning his next examination.

In addition there is the index file of positive findings. Each chart is carefully checked and the examinee's name entered on the appropriate card or cards. This makes it possible to determine, almost at a glance, the number of cases of, for instance, cervicitis, which have been encountered to date, in which clinic the examinee was seen and the sex.

Nothing has been said concerning appointments. Item one here might be that for some weeks the entire time of one office girl was required to answer the telephone. Within ten days after the announcement that the clinics were to be opened, and before any was in operation, all of them were booked to capacity for six months and there was a considerable waiting list. With appointments made so long in advance, postcard reminders were indicated. These are sent well in advance. The present waiting list is *uncounted* hundreds. There are those who fail to appear for examination but do not cancel the appointment. This is unfortunate, because many are waiting. Therefore, in order to hold an appointment, the examinee is asked to send check or money order for \$2. If this is not received by a specified date, it will be assumed that he does not wish the appointment, and the hour is assigned to some one on the waiting list. The remainder of the contribution is made at the clinic.

So much for the first part of my subject. There are now eight clinics a week in Philadelphia, and plans for more are pending. One was opened in the Falk Clinic in Pittsburgh in early November. Others are in process of organization in various states.

RESULTS OBTAINED

Up to December 1, that is, in just under five months, a total of 919 examinees have been seen, 176 men, 743 women. Of these, 111 men and 493 women were referred to physicians; 3 men and 9 women, who were unable to pay for private medical care, were referred to clinics. Of the 604 physicians who received reports of positive findings, 287 have replied. The replies show that (1) 14 men and 36 women failed to see their

physicians; (2) 4 men and 26 women were referred to specialists by their personal physicians; 7 men and 48 women postponed having treatment; the remainder of these persons were under treatment, or treatment has been completed

Of the first 1,065 examined, there were 15 men and 96 women between 19 and 30, 42 men and 290 women between 31 and 40, 76 men and 285 women between 41 and 50, 48 men and 147 women between 51 and 60, 13 men and 51 women between 61 and 75 and 2 women of 76 or over.

In the 616 who were referred for medical or surgical care, positive findings include 9 malignant lesions: in men, 1 of the colon, 1 of the prostate; in women, 2 of the fundus of the uterus, 1 of the gallbladder, 1 of the cervix, 1 of the peritoneum, 1 of the breast and 1 epithelioma of the skin. Including biopsies requested, there were 48 suspected malignant lesions, 6 in men, 42 in women. Biopsies were requested for 1 man and 28 women. Sixteen dilations and curettages were requested.

Other positive findings include 239 cervical lesions, 177 cardiovascular diseases, 138 skin lesions, 110 hemorrhoids, 77 varicosities, 67 cystoceles, 64 rectoceles, 33 gastrointestinal disturbances, 27 hernias, 20 papillomas, 11 fibromyomas, 8 myomas, 8 lipomas, 3 fibromas of the uterus and 4 unclassified benign tumors. The teeth required attention in 34 cases and the feet in 88.

COMMENT

Perhaps a word should be added as to the christening of these examining centers. The name used is admittedly heavy and cumbersome. But I submit that if their name is to indicate their purpose it can't be short. Try a few alternatives, such as "periodic health examinations with emphasis on conditions which may lead to cancer," or "diagnostic clinics with emphasis on cancer prevention." You can go into solitary confinement and play around with words and synonyms and rearrangements for a week and still come up with a mouthful. If any one can do otherwise, more power to him.

It may be that you have heard echoes of a debate as to terminology—possibly you've heard the terms "cancer prevention" and "cancer detection" used and abused, cussed and discussed. Far be it from me to enter such a controversy; but it may be noted (1) that we don't want to wait until a cancer is there to be detected—we want to catch its forerunner, as far as this may be possible, and (2) that it is generally agreed (as was mentioned in this city a few days ago) that removing keratoses from 100 individuals means that those 100 will not have cancers in the keratotic areas. Similarly with certain nevi.

In my opening sentence reference was made to the desirability of the interest and cooperation of the county medical society and the hospital which provides space for the clinics. These are of the essence. And I cannot close without a word of appreciation to the Philadelphia County Medical Society and the several hospitals concerned in the launching of this vital public health service. Such success as it has enjoyed is due in no small measure to their enthusiastic support and superb cooperation.

Lincoln-Liberty Building, Philadelphia 7.

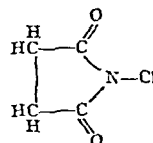
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary

SUCCINCHLORIMIDE.—N-chlorosuccinimide.—The chlorinated imide of succinic acid— $C_4H_4O_2NCl$ —M. W. 133.54. Succinchlorimide yields not less than 25.0 per cent nor more than 26.6 per cent of active chlorine.



Actions and Uses.—Succinchlorimide is proposed for use in disinfection of water. Data were submitted showing that succinchlorimide will disinfect water containing *Escherichia coli*, *Eberthella typhi*, *Salmonella paratyphi* A and B, *Vibrio cholerae* and *Shigella dysenteriae* within twenty minutes in dilution of 11.6 parts per million (approximately 1:100,000).

Dosage.—For the disinfection of water, 11.6 mg of succinchlorimide per liter.

Tests and Standards—

Succinchlorimide occurs as a white to yellowish white powder possessing a relatively strong odor of chlorine. It is sparingly soluble in benzene and in chloroform, slightly soluble in ether. Its solubility in water approximates 1.6 Gm per hundred cubic centimeters at 25°C. The pH of a saturated aqueous solution of succinchlorimide is about 4.0. Succinchlorimide begins to sublime at about 127°C and melts at from 147 to 150°C.

Although it appears to be relatively stable toward light and air at ordinary temperatures, succinchlorimide should be packaged in air tight, light resistant containers.

Place a few crystals of succinchlorimide in a test tube and add 2 cc of sodium iodide solution and 10 cc of chloroform. A purple color develops in the chloroform layer.

To 5 cc of a saturated aqueous solution of succinchlorimide, acidified with diluted sulfuric acid, add 5 cc of ethyl acetate and 1.0 cc of sodium thiosulfate solution. Shake the mixture vigorously for a short time and transfer the layer of ethyl acetate to a watch glass, evaporate the ethyl acetate slowly to dryness and collect the resulting white residue. The succinimide obtained melts at 124°C. Heat a small amount of the succinimide obtained with ten to twenty times its amount of zinc dust contained in a test tube. When distillation begins, place a pine splint which has been soaked for thirty seconds in hydrochloric acid in the fumes. A red color develops in the splint.

Ignite about 2.0 Gm of succinchlorimide, accurately weighed until it is charred. Moisten the residue, after cooling with a few drops of sulfuric acid and reignite to constant weight. The residue is not more than 0.15 per cent.

Dissolve about 0.15 Gm of succinchlorimide, accurately weighed, in 100 cc of water contained in an iodine flask. Add 3 Gm of potassium iodide and 10 cc of dilute sulfuric acid. Stopper the flask, seal the stopper with a known amount of tenth normal sodium thiosulfate solution and allow to stand five minutes with occasional swirling. Loosen the stopper, allowing the thiosulfate solution to run into the iodine flask, wash the stopper and neck of the flask with 5 cc of carbon tetrachloride followed by water, and titrate with more tenth normal sodium thiosulfate to the disappearance of color in the carbon tetrachloride layer. As the end point is approached it is necessary to stopper the flask and shake it frequently and vigorously, with care to avoid loss of contents. Each cubic centimeter of tenth normal sodium thiosulfate is equivalent to 0.001773 Gm of active chlorine. The active chlorine content of succinchlorimide is not less than 25.0 per cent nor more than 26.6 per cent.

NATIONAL ANILINE DIVISION, ALLIED CHEMICAL & DYE CORP., NEW YORK

Succinchlorimide: Bulk.

GLOBIN INSULIN WITH ZINC (See Supplement to New and Nonofficial Remedies, 1944, p. 31)

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SATURDAY, SEPTEMBER 22, 1945

OFFICIAL CALL

To the Officers, Fellows and Members of the
American Medical Association:

The Annual Session of the House of Delegates of the American Medical Association will be held in Chicago, Illinois, from Monday, December 3, to Thursday, December 6, 1945.

Herman L. Kretschmer, President.

H. H. Shoulders,

Speaker, House of Delegates.

Attest:

Olin West, Secretary,

Chicago, September 14, 1945.

SYRINGE TRANSMITTED HEPATITIS

The occurrence of jaundice in American and British troops and in the natives of Brazil following administration of yellow fever vaccine was a serious problem early in the war. Elimination of the human serum in the preparation of the vaccine prevented such jaundice, which was demonstrated to be of hepatic and not of hemolytic origin. The hepatitis or the syndrome of "homologous serum jaundice" presented as a constant feature the long interval between the injection of a human blood product and the appearance of jaundice. The incubation period is sixty to ninety days. The nature of the icterogenic factor in the human serum has not been determined, although many believe it to be a virus.

Bigger¹ has concluded that jaundice in syphilitic patients who receive intravenous arsenicals is due to transmission of a virus from patient to patient and not to the toxic effect of the arsenical on the liver. MacCallum² clearly demonstrated that hepatitis in syphilitic patients under arsenical treatment results from the

transmission of an infective agent on syringes and needles. Dible, McMichael and Sherlock³ did not find histologic criteria for the differentiation of the lesions resulting from epidemic hepatitis, arsenotherapy and serum inoculations in their aspiration biopsy studies of 56 cases of acute hepatitis. Sheehan⁴ observed that epidemic hepatitis can be transmitted from one patient to another by syringes used for collecting blood. Droller⁵ reported the occurrence of hepatitis among patients in a diabetic clinic as the result of collecting blood in syringes which were not boiled. The accumulation of recent data suggests that any syringe used for taking blood may be potentially icterogenic.

The data with regard to syringe transmitted infection are in accord with what is known about hepatitis transmitted by the injection of yellow fever vaccine containing dried human plasma, of measles or mumps convalescent serum and of blood in transfusions. In all cases injection of presumably infected human blood or plasma has been followed by cases of hepatitis two or four months later. Darmady and Hardwick⁶ found among 182 consecutive patients with jaundice admitted to their hospital that 34 had received intravenous or intramuscular injections within the previous two hundred days. These authors stress two points in the prophylaxis of syringe hepatitis: First, the quantity of icterogenic principle involved may be extremely small and can be harbored in any syringe. Thus Bradley, Loutit and Maunsell⁷ produced jaundice in human subjects by the administration of as little as 0.1 cc. of homologous serum. Secondly, this agent is heat resistant and is not killed by the ordinary methods of sterilization.

All syringes and apparatus used for the intraveous or intramuscular injection of human subjects should be sterilized by dry heat. To secure blood for laboratory purposes a syringe is unnecessary, provided a tourniquet is used. Enough blood can be withdrawn from the vein by the use of a wide bore needle alone, allowing the blood to drip into the appropriate tube. Mendelssohn and Witts⁸ have demonstrated that, when blood is taken from a vein with a syringe by the orthodox technic, some of the blood is sucked back into the vein when the tourniquet is released. If, therefore, the syringe is not sterile, the patient is exposed to infection.

A committee of experts appointed by the Medical Research Council (England) under the chairmanship of Professor G. S. Wilson made a number of recommendations on the subject of proper sterilization of syringes.

3. Dible, J. H.; McMichael, John, and Sherlock, S. P. V.: Pathology of Acute Hepatitis, *Lancet* 2: 402 (Oct. 2) 1943.

4. Sheehan, H. L.: Epidemiology of Infective Hepatitis, *Lancet* 2: 8 (July 1) 1944.

5. Droller, Hugo: An Outbreak of Hepatitis in a Diabetic Clinic, *Brit. M. J.* 1: 623 (May 5) 1945.

6. Darmady, E. M., and Hardwick, Christopher: Syringe-Transmitted Hepatitis, *Lancet* 2: 106 (July 28) 1945.

7. Bradley, W. H.; Loutit, J. F., and Maunsell, Kate: An Episode of Homologous Serum Jaundice, *Brit. M. J.* 2: 268 (Aug. 26) 1944.

8. Mendelssohn, K., and Witts, L. J.: Transmission of Infection During Withdrawal of Blood, *Brit. M. J.* 1: 625 (May 5) 1945.

1. Bigger, Joseph W.: Jaundice in Syphilitics Under Treatment, *Lancet* 1: 457 (April 10) 1943.
2. MacCallum, F. O., and Bauer, D. J.: Homologous Serum Jaundice, *Lancet* 1: 622 (May 13) 1944.

They point out that intravenous injection of drugs will usually contaminate the syringe with the patient's blood, as Mendelssohn and Witts have demonstrated; that any one with acute or recent respiratory infection should wear a mask during manipulation of syringes. Much of the trouble with syringes comes from failure to clean them properly before resterilization. Thorough cleansing is particularly needed when the syringe has been used to aspirate blood or pus. While sterilization in the hot air oven (160 C. for one hour) or in the autoclave is best, sterilization by boiling must often be adopted and is effective against all but highly resistant sporing organisms. Chemical disinfection of syringes has many disadvantages and the only permissible disinfectant is 70 to 75 per cent alcohol. Even then, only all-glass syringes disassembled and immersed under the alcohol for five minutes can be guaranteed to be free of vegetative pathogens. This method of sterilization is therefore justified only for such procedures as insulin injections, in which heating sterilization is impracticable.

The accumulation of data regarding the occurrence of homologous serum jaundice suggests the necessity for revision of the existing injection technics particularly as regards sterilization of syringes and needles.

PREVENTION OF FROSTBITE GANGRENE

Using their new fluorescein test, Lange and his associates¹ of New York Medical College have added new basic facts to the pathologic physiology of frostbite. In this test small amounts of fluorescein are injected intravenously, and the migration of the material through the blood stream and into interstitial tissue spaces is followed under ultraviolet light. Applying these new technics, the New York clinicians have suggested a promising new method for the prevention of post-frostbite gangrene.

In Lange's initial experiments, 6 rabbits were depilated on the abdomen and exposed to cold by applying the bottom of a small beaker filled with solidified carbon dioxide for periods varying from five to ninety minutes. Under this exposure the local area freezes solid and thaws after intervals varying from fifteen to twenty-five minutes, depending on the length of the exposure. For periods varying from thirty to one hundred and twenty minutes following such refrigeration, fluorescein does not appear in the exposed area, indicating a severe initial spasm of the blood vessels. This is followed by gradual vasodilatation, fluorescein appearing in the exposed area. Diffusion into the surrounding tissues is soon many times greater than in nonexposed skin, giving the picture of local hyperfluorescence. This period is characterized also by swelling of the exposed tissues.

Eight to fourteen hours after exposure, a repeat fluorescein injection shows that the exposed spot is again relatively nonfluorescent, indicating a terminal interference with the local circulation. Biopsies at this period show a clumping of the red blood cells in the smaller blood vessels, confirming the "silting" or "sludge formation" previously described by Scandinavian² and British³ investigators. This clumping does not represent true thrombus formation since the clumped erythrocytes are readily washed out by a simple saline injection. After approximately seventy-two hours true or organized thrombi are formed, at which time the entire area becomes nonfluorescent and gangrenous.

If this terminal organized thrombosis could be prevented, the seriousness of frostbite gangrene could no doubt be reduced. Lange attempted to accomplish this by heparinization. Groups of rabbits were subjected to experimental frostbite of varying degrees of intensity. Within four hours, half of the members of each group were heparinized. In a typical group of 22 rabbits, one hind leg of each animal was protected by a thin boot of rubber and exposed to an alcohol-solidified carbon dioxide bath ($-20^{\circ}\text{C}.$) for a period of from forty-five to ninety minutes. Eleven of the exposed animals were then heparinized. Nine of these recovered without signs of gangrene; only 2 of them developed slight surface lesions. All of the untreated controls lost their legs by complete gangrene, including the bone.

The practical applicability of heparin therapy to human medicine was tested on volunteers from the Jewish Hospital of Brooklyn. Experimental frostbite was produced by applying for ten minutes to the upper part of the arm the bottom of a porcelain crucible filled with solidified carbon dioxide. The heparinization was started immediately, 1 volunteer of each group being untreated to serve as a control. All of the treated persons recovered without deep injury.

Thus far only 1 patient has been treated according to the new method. This man had been lying in the street at subfreezing temperature for at least fourteen hours. On admission his hands and the lower part of his legs were ice cold and remained so for five hours after admission. He was heparinized for five days by the intravenous route, the clotting time being held at between thirty and sixty minutes. He developed considerable blistering, especially on the hands, but escaped any permanent loss of tissue. Previous experience with similar cases had suggested that without heparinization there probably would have been some loss of the extremities.

Experiments are now in progress to perfect the method of heparinization and to determine the longest interval between exposure and start of therapy that will still be effective.

1. Lange, Kurt, and Boyd, L. J.: Use of Fluorescein Method in Establishment of Diagnosis and Prognosis of Peripheral Vascular Disease, *Arch. Int. Med.* 74:175 (Supp.) 1944; *Science* 102:151 (Aug. 10) 1945.

2. Kreyberg, L., and Rotnes, L.: *Acta path. microbiol. Scand.* 11: 162, 1932.

3. Greene, Raymond: The Immediate Vascular Changes in True Frostbite, *J. Path. & Bact.* 55:229 (July) 1943.

FUNGICIDAL TITER OF CLAVACIN

In 1942 Waksman and his associates¹ of the New Jersey Agricultural Experiment Station described two new antibiotics, each of which was superior to penicillin in its bacteriostatic action on gram positive bacteria in vitro. One of these they named "clavacin" after the organism from which it was isolated (*Aspergillus clavatus*). Clavacin was particularly interesting since it was also bactericidal in high dilution against gram negative micro-organisms and bacteriostatic for certain common fungi. Since then clavacin has been isolated in crystalline form.

On first view, clavacin is of little clinical interest since it is highly toxic on intravenous or intramuscular injection into animals. Herrick² of the Hygienic Laboratory, University of Michigan, however, calls attention to the fact that many antibiotics are toxic on parenteral injection but most of them are nontoxic when given orally or applied externally. Since most fungous diseases are both local and superficial in character, the effects of clavacin on pathogenic fungi should be of clinical interest. Three typical pathogenic fungi were therefore tested by him: *Monilia albicans* (thrush), *Oidium asteroides* (blastomycetic dermatitis) and *Trichophyton gypseum* (epidermophytosis).

To test the fungistatic action of clavacin, serial dilutions of the crystalline product were made in liquid culture medium, and 25 cc. samples of each dilution inoculated with one drop of a heavy suspension of the organism to be tested. At the end of four to seven days' incubation, turbidity readings showed that growth of *T. gypseum* was distinctly inhibited by a 1:100,000 dilution of clavacin and totally inhibited by a 1:10,000 dilution. The two other organisms were slightly more resistant, requiring from two to four times these concentrations for similar effects.

To determine the fungicidal titers the test organisms were similarly exposed to higher concentrations of clavacin and viability tests made at stated intervals, washed centrifuge samples of the exposed organisms being used to inoculate subcultures. Failure of the subcultures to grow showed that all three test organisms were killed within fifteen minutes to one hour by 1 per cent clavacin and by the end of three hours by 0.5 per cent clavacin. The most susceptible organism (*T. gypseum*) was also killed within five hours by 0.1 per cent clavacin.

Since 0.5 per cent clavacin is lethal for all pathogenic fungi thus far tested, clavacin in this concentration should be of research interest in the treatment of local fungous infections of the skin and exposed mucous surfaces. Less concentrated solutions might be of prophylactic interest. Clinical tests, however, have not yet been reported.

1. Waksman, S. A.; Horning, E. S., and Spencer, E. L.: *J. Bact.* 45: 233 (March) 1943.

2. Herrick, J. A.: *Proc. Soc. Exper. Biol. & Med.* 59: 41 (May) 1945.

Current Comment

THE DISTINGUISHED SERVICE MEDAL

The Distinguished Service Medal of the American Medical Association will be presented for the eighth time at a meeting to be held during the regular session of the House of Delegates at the Palmer House in Chicago December 3 to 6. The first presentation of this medal was made in 1938 to Dr. Rudolph Matas of New Orleans. It has subsequently been awarded to Dr. James B. Herrick of Chicago in 1939, to Dr. Chevalier Jackson of Philadelphia in 1940, to Dr. James Ewing of New York in 1941, to Dr. Ludvig Hektoen of Chicago in 1942, to Dr. Elliott P. Joslin of Boston in 1943 and to Dr. George Dock of Pasadena, Calif., in 1944. This award is recognized as one of the most distinguished honors within the gift of the American Medical Association. Any Fellow of the Association may submit nominations, which should be sent, together with a record of the scientific services of the nominees, to the chairman of the Committee on Distinguished Service Award, Dr. A. A. Walker, 2250 Highland Avenue, Birmingham, Ala., or to the Secretary of the Association at 535 North Dearborn Street, Chicago. Of all nominations received by the Committee, five are submitted to the Board of Trustees of the Association, from which the Board selects three to be submitted to the House of Delegates at its first meeting at the time of its regular session. Immediately on submission of the nominations by the Board of Trustees, the House of Delegates by official vote selects the recipient of the honor, to whom the Distinguished Service Medal is presented at the meeting at which the President-Elect is installed as President, which usually is on Tuesday evening of the week of an annual session. An extensive list of distinguished physicians nominated for this award will enable the Committee, the Board of Trustees and the House of Delegates, all of whom participate in the selection, to determine for 1945 a recipient of distinction whose nomination will reflect favorably on himself and on the Association.

A LABOR LEADER DISCUSSES COMPULSORY SICKNESS INSURANCE

Times change, and the points of view of men change with time—but there are fundamental principles of human thinking and living that are eternal verities. On Dec. 5, 1916 a conference on social insurance was held in Washington to consider such problems as unemployment insurance, old age insurance and sickness insurance. Samuel Gompers, then president of the American Federation of Labor, speaking with deep feeling from some simple memoranda, warned organized labor of the threat inherent in the collectivist philosophy by which some leaders of labor are being seduced today. His address might well have been written as of today. Elsewhere in this issue (page 299) the address is published in full. Every leader of labor in the United States, every worker, every physician should read it and heed it. It is a cry of warning to those who would destroy the American democracy.

MEDICINE AND THE WAR

MEDICAL DEMOBILIZATION

NAVY

In the discharge of its obligation to the civilian public the Navy Department desires to accomplish as rapidly as possible the release of physicians, dentists, nurses and other officers and enlisted personnel of the Naval Reserve trained in medical fields. It is obvious that during the next few months they will be needed at almost full strength for the care, evacuation and disposition of the wounded and sick still coming from overseas and also in connection with general demobilization.

The transportation of wounded require full staffing at the point of departure, en route to the medical centers in the United States and within the naval hospitals and dispensaries of the continental United States. It should be remembered that the peak hospital census in military establishments in this country following V-E day was not reached until July 1.

The medical corps will perform a vital function over the next year or eighteen months in the separation process promised for over two and a half million men. Every man and woman returned to civilian life must be given a physical examination to include a chest x-ray, blood tests and any other testing individually indicated.

The necessary lag in medical demobilization behind general demobilization will be kept at an absolute minimum, and every effort will be made to respond at the earliest moment to the special needs of medical schools, teaching hospitals and individual and community hardship cases.

Effective September 15, therefore, the higher critical score for medical corps release is necessary, as announced in ALNAV 252. This critical score requires a total of 60 points on the following basis:

- ½ point for each year of age, computed to nearest birthday.
- ½ point for each month of active duty from Sept. 1, 1939.
- ¼ point additional for each month of active duty outside the United States since Sept. 1, 1939 (effective Sept. 15, 1945).
- 10 points for a state of dependency existing as of Aug. 15, 1945.

On this basis it is determined that 1,128 medical officers will be eligible for release by September 15, 190 additional by November 1, 137 additional by December 1 and 223 additional by January 1, or a total of 1,678. Thereafter it is expected that critical scores for release will be lowered by degrees in order to carry out the present plan to separate a total of 8,000 medical officers by Sept. 1, 1946.

Many medical officers in the Reserve desire opportunities for "refresher" training before returning to civilian practice. Assignments to duty in United States naval hospitals afford one means of supplying such training, and the average period of time allotted for this specific purpose will probably be about three months.

Officers who elect to continue on active duty for a "refresher" period after becoming eligible for release under the point system may do so if they so request. The request may state that it is understood that this continuance on active duty after eligibility for release is for the purpose of obtaining an assignment in a specific type of service in a naval hospital for "refresher" training.

In a limited number of instances such assignments may be available and possible before the full 60 points of eligibility for release have been reached, but this "refresher" training by hospital assignments may retain an officer beyond the date when his point eligibility for release becomes effective. Periods of assignments of this type, constituting active duty in any United States naval hospital officially approved for graduate or residency type training, may be submitted for credits before the American colleges and the American boards with every likelihood of acceptance.

Plans are projected for the peacetime utilization of medical officers of the Reserve on inactive duty as consultants, lecturers

or otherwise in naval hospitals near their place of residence. Additional plans are under consideration in which the active assistance of reserve officers is desired and to be enlisted whereby junior medical officers in the regular Navy undergoing graduate training in United States naval hospitals may seek and obtain one year residency appointments in the foremost civilian institutions for the rounding out of their specialty training.

The graduate educational program of the medical corps of the regular Navy, already in full swing, and its peacetime administration offer inducement to medical officers of the Reserve to transfer to the regular Navy. This, it is hoped, may be sought by many.

The continued and active interest of our many reserve officers in the constant advancement of the medical corps of the United States Navy and in its aims is desired and solicited by the Bureau of Medicine and Surgery of the United States Navy.

ARMY

Following the termination of hostilities in Europe, the Surgeon General sought to build up maximum medical support in the Pacific for projected operations against Japan and simultaneously to provide an orderly system for the release of Medical Department officers after insuring that requirements would be met for the Army of Occupation in Europe and for hospitals in the United States with their large numbers of sick and wounded.

The early advent of V-J day necessitated radical changes in the Surgeon General's planning. The Pacific changed from a deficit theater in need of thousands of additional personnel for full-scale military operations to a surplus theater which had available for return large numbers of Medical Department personnel to the United States just as soon as the occupation of Japan had been completed. Improvement in the overall transportation situation likewise made it possible to accelerate the return of troops from the European and Mediterranean theaters, which presaged the more rapid return and separation of Medical Department personnel.

The cessation of hostilities in the Pacific also had important bearing on the large general and convalescent hospitals in the United States to which the more seriously sick and wounded are returned for definitive care. Except for small numbers of battle casualties now scattered through Pacific hospitals whose early return to the United States is a prime objective, no additional battle casualties will be evacuated and the patient flow from overseas will be limited to individuals with serious diseases or nonbattle injuries. This foreshadowed an early shrinkage in the general and convalescent hospitals at home.

The rapid demobilization of the Army during the coming months will necessitate the use of almost 2,000 Medical Corps officers at separation centers for final examinations. In addition, the large number of limited service personnel whose separation will be effected under the demobilization plan will further increase the requirement for Medical Corps officers for medical processing work.

Under the V-E plan, which was published in full in THE JOURNAL August 11, page 1104, it was necessary to establish adjusted service ratings for separation as high as 120 for scarce Medical Corps specialists and 100 for nonscarce Medical Corps officers. These high adjusted service ratings reflected the fact that the Army was in a position to release Medical Department personnel only very slowly as long as the war in the Pacific continued and large numbers of battle casualties in the United States Army hospitals had not yet completed their treatment.

The worldwide distribution of Medical Corps officers at the beginning of September is estimated as follows: approxi-

mately 22,000 overseas, 11,000 in the European theater and 9,000 in the Pacific and the Asiatic mainland; the remainder overseas are in other bases such as Newfoundland, the Middle East, on hospital ships, and in dispensaries of the Air Transport Com-

TABLE 1.—Criteria for Separation

Corps	Adjusted Service Ratings	Age	Length of Service
Medical Corps.....	80	45	Prior to Pearl Harbor*
Dental Corps.....	80	45	Prior to Pearl Harbor
Veterinary Corps.....	80	42	Prior to 1941
Sanitary Corps.....	70	42	Prior to Pearl Harbor
Medical Administrative Corps.....	70	42	Prior to Pearl Harbor
Army Nurse Corps †.....	35	35	
Medical Department Dietitians †.....	40	40	
Physical therapists †.....	40	40	

* Except grades A, B and C of ophthalmologists and otolaryngologists, orthopedic surgeons and medical laboratory officers, all grades of neuropsychiatrists and plastic surgeons (prior to Jan. 1, 1911).

† In addition, married, dependents under 14.

mand. There are about 16,000 in the United States, excluding 3,000 who are patients in hospitals and newly commissioned officers in training status. Another 4,000 were in transit to the Pacific as of V-J day; this group now becomes immediately available for separation or as replacements for high point individuals who can be separated immediately.

Under the V-E plan, almost 1,500 Medical Corps officers have been separated. The Surgeon General testified on August 31 for the Military Affairs Committee of the House of Representatives that he planned to separate a total of 13,000 Medical Corps officers, 25,000 nurses and 3,500 dentists by the end of this year.

It is estimated that about 6,000 Medical Corps officers will be returned from Europe for separation and that an equivalent number can be released from personnel now in the United States. Surplus medical personnel will be returned from the Pacific as expeditiously as possible. A commission is now on its way to the Pacific to determine the exact number of surplus personnel. As already stated, 1,500 doctors have already been

released under the V-E plan, and it now appears that the 13,000 estimate presented by the Surgeon General to Congress may be exceeded.

The original criteria for the release of Medical Corps officers were geared to adjusted service ratings and age. On the basis of both military and civilian reactions, a third factor, length of service, has been added.

Table 1 summarizes the criteria for separation, any one of which is basis for relief from active military service.

Despite the cessation of hostilities, a limited number of Medical Department personnel must still be sent from the United States to overseas theaters to permit the return of high score individuals for separation. The criteria presented in table 2 have been established to govern the selection of personnel for overseas service, except for volunteers. Individuals to go overseas must have a point score below that listed in the table or be below the age therein shown.

The separation criteria now in effect will have to be revised on or before the end of this year. Present plans contemplate the lowering of criteria during the first half of 1946, which will include a provision for length of service as a basis for separation

TABLE 2.—Criteria Governing Selection for Overseas Service

Corps	Adjusted Service Ratings	Age
Medical Corps.....	45	40
Dental Corps.....	45	40
Sanitary Corps.....	45	35
Veterinary Corps.....	30	35
Medical Administrative Corps.....	30	35
Army Nurse Corps.....	12	30
Medical Department Dietitians, Physical Therapists.....	18	30

of officers who came on active duty after Pearl Harbor. On the basis of a 2.5 million army, the Surgeon General will be able to release from V-E strength approximately 30,000 Medical Corps officers and 10,000 dentists and more than 40,000 nurses.

ARMY

NEW SCHOOL OF PREVENTIVE MEDICINE

A school of preventive medicine, the first of its kind in the Army, has been organized at Army Headquarters, Middle Pacific, Fort Shafter, T. H., and will leave shortly for Manila for duty under General of the Army Douglas MacArthur. The purpose of the school, which is composed of a selected group of 14 officers and 28 enlisted men, is to train army personnel in the most efficient methods of protecting troops from disease. The staff includes specialists in epidemiology, sanitation, malaria, biostatistics, mammology, nutrition, entomology, parasitology and industrial hygiene.

Three regular courses and a special course will be taught. A four weeks course for Medical Department officers will provide instruction in epidemiology, control of insect borne disease, sanitary engineering, venereal disease control, nutrition, industrial hygiene, environmental sanitation and rodent control. It is planned that twenty-five officers at a time will be enrolled in this course. The line officers' course, lasting two weeks and accommodating twenty students, will teach battlefield hygiene, including insect and rodent control, water discipline, garbage disposal and control of other factors which could cause epidemics among troops. A similar course of the same length and student capacity is designed for noncommissioned officers.

Under certain circumstances a special team from the school will be dispatched to the location of units to conduct one or more of the courses, varying in length and number of students according to the time available and the needs of the unit. Sufficient supplies and equipment can be carried by the group to sustain itself without the necessity of becoming attached to any hospital for food and quarters.

ARMY AWARDS AND COMMENDATIONS

Captain Ludwig J. Pyrttek

The Bronze Star was recently awarded to Capt. Ludwig J. Pyrttek, formerly of Hartford, Conn., "for meritorious service in connection with military operations against an enemy of the United States from July 11, 1944 to April 24, 1945. Captain Pyrttek," the citation continued, "as medical officer in a clearing company for an infantry division and later in collecting company for an infantry regiment during this period has displayed extraordinary ability, tireless energy, understanding sympathy and deep devotion to duty. Handling the patients coming under his care with a superior degree of professional skill, he has been responsible for the saving of many lives. His constant consideration of the welfare and comfort of the wounded and the efficient and unselfish manner in which he has contributed to the successful operation of these two organizations reflect credit on his character and ability as an officer and on the Medical Corps of the Army." Dr. Pyrttek graduated from Rush Medical College, Chicago, in 1942 and entered the service Aug. 13, 1943.

Lieutenant Colonel Isidore A. Feder

The Legion of Merit was recently awarded to Lieut. Col. Isidore A. Feder, formerly of Brooklyn. The citation accompanying the award read "For exceptionally meritorious conduct in the performance of outstanding service, as chief of medical service of the 45th Evacuation Hospital from Aug. 2, 1944 to May 10, 1945. Lieutenant Colonel Feder made many recommendations on the treatment of battle casualties which have been adopted throughout the Ninth United States Army. The skill and dispatch with which he organized a tuberculosis service in Buchenwald at the notorious German concentration camp

rapidly relieved a critical epidemic risk at that institution. The judgment and devotion to duty displayed by Lieutenant Colonel Feder reflect highest credit on himself and on the armed forces of the United States." Dr. Feder graduated from Tufts College Medical School, Boston, in 1927 and entered the service Aug. 12, 1942. Dr. Feder is also the recipient of the Bronze Star (*THE JOURNAL*, July 7, 1945, p. 738).

Major Luther C. Heidger

The Bronze Star was posthumously awarded to Major Luther C. Heidger, formerly of Stratford, Conn., for "service from March 2 to Sept. 7, 1944 at Lasang, Davao, Philippine Islands, and aboard a prison ship. As senior medical officer of a prisoner of war camp and aboard an enemy prison ship he performed his work exceptionally well even though seriously handicapped by lack of medicine and equipment. Aboard the ship he requested the enemy to furnish more air and water for the prisoners and used every persuasive means possible to obtain the bare essentials of life for his men. He devoted his entire attention to furnishing medical aid and by his understanding and encouragement he inspired the men and gave them hope. He sacrificed his life in the course of his patient devotion to duty." Dr. Heidger graduated from the University of Vermont College of Medicine, Burlington, in 1921 and entered the service Sept. 12, 1941.

Captain Charles F. Lewis

Capt. Charles F. Lewis, formerly of Oakland, Calif., was recently awarded the Bronze Star. "While a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945," the citation read, "he performed outstanding services as ward surgeon in a general hospital. With improvised, makeshift equipment and depleted medical supplies, he labored against great odds and on a starvation diet. In addition to his medical duties he served as commanding officer of the medical detachment, a task which required day and night duty under extremely hazardous conditions. His excellent leadership, his cheerful attitude and his unflinching courage and devotion to duty were a great inspiration to the entire prison camp." Dr. Lewis graduated from the University of Louisville School of Medicine in 1940 and entered the service July 12, 1941.

Lieutenant Colonel John Groopman

The Soldier's Medal was recently awarded to Lieut. Col. John Groopman, formerly of New York, "for heroism in the Burma-China-India theater of operations. Colonel Groopman voluntarily risked his life on the night of July 8, 1944 while serving as medical officer of the day at an air base in China." The citation stated further that "Groopman, without regard for personal safety, ran to a burning bomber plane, loaded with gasoline, bombs and ammunition, that had crashed at the end of a runway and attempted to extricate its crew. He was warned that the bombs and ammunition might explode at any moment and indeed ammunition did go off from time to time, but he insisted on crawling close to the burning plane in an effort to render aid." Dr. Groopman graduated from New York University College of Medicine, New York, in 1932 and entered the service Oct. 5, 1940.

Captain Floyd M. Burgeson

The Bronze Star was recently awarded to Capt. Floyd M. Burgeson, formerly of Des Moines. "As American surgeon at the Szubin, Germany, prisoner of war camp from October 1944 to January 1945," the citation read, "he displayed marked devotion to duty and high professional skill in conserving the health and improving the well-being of many hundreds of American officer prisoners of war." Dr. Burgeson graduated from the State University of Iowa College of Medicine, Iowa City, in 1934 and entered the service Feb. 10, 1941.

Merle M. Musselman

The Bronze Star was recently awarded to Capt. Merle M. Musselman, formerly of Tucson, Ariz. The citation stated that "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945 he performed outstanding services as chief of the surgical service and ward surgeon in a general hospital. With impro-

vised, makeshift equipment and depleted medical supplies he labored against great odds and on a starvation diet. He cheerfully assumed additional duties as chief of laboratory and x-ray service and of attending surgeon. His devotion to duty and unflinching courage, his outstanding performance under extremely difficult and hazardous conditions were an inspiration to the entire prison camp." Dr. Musselman graduated from the University of Nebraska College of Medicine in 1939 and entered the service July 1, 1941.

Captain Laurence K. MacDaniels

The Bronze Star was recently awarded to Capt. Laurence K. MacDaniels, formerly of Portland, Ore., for work in Belgium and Germany. "As commanding officer of the battalion medical detachment, he constantly served as an inspiration to his men. On numerous occasions he courageously ignored enemy artillery and small arms fire to render prompt and effective treatment to the wounded. Personal fatigue and unfavorable conditions did not deter him from his tasks. With indefatigable energy and profound judgment he rigorously trained the men of his detachment in the performance of their vital duties, never hesitating to instruct them by his personal example." Dr. MacDaniels graduated from the University of Oregon Medical School in 1941 and entered the service Aug. 1, 1942.

Lieutenant Colonel Hjalmar T. Gentle

Lieut. Col. Hjalmar T. Gentle, formerly of Medford, Ore., was recently awarded the Bronze Star. As commanding officer of the 9th General Dispensary, "he has been solely responsible for the efficient and effective manner in which it was set up, organized and operated. By virtue of his keen organizational ability, unerring sense of duty and professional knowledge, he has made it possible for the dispensary to serve the entire headquarters with the least amount of inconvenience and the highest type of efficiency." Dr. Gentle graduated from the University of Oregon Medical School, Portland, in 1929 and entered the service Aug. 11, 1941.

Captain James W. Wiley

The Air Medal was recently awarded to Capt. James W. Wiley, formerly of Portland, Ore., "for meritorious achievement while participating with the 493d Bomber Group in heavy bombardment missions in air offensives against the enemy over Europe. The courage, coolness and skill displayed by this officer on these occasions reflect great credit on himself and on the armed forces of the United States." Dr. Wiley graduated from the University of Oregon Medical School, Portland, in 1933 and entered the service Oct. 28, 1942.

Captain Edmund A. Melvin

The Air Medal was recently awarded to Capt. Edmund A. Melvin, formerly of Gulfport, Miss., "in recognition of meritorious achievement while participating in aerial flights in the European Theater of Operations." Dr. Melvin graduated from the University of Tennessee College of Medicine, Memphis, in 1938 and entered the service Feb. 17, 1942. Dr. Melvin also wears the Distinguished Service Unit citation badge awarded his group for its performance during the "Battle of the Bulge" in December 1944.

Major Oram R. Lawry Jr.

Major Oram R. Lawry Jr., formerly of Portland, Maine, was recently commended by the commanding officer of the 65th General Hospital for his clinical work with that medical unit. Dr. Lawry graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1939, the Medical Field Service School, Carlisle Barracks, Pa., in 1941 and the Command and General Staff School, Fort Leavenworth, Kansas, in 1943. He entered the service in July 1941.

Captain Katsumi J. Nakadate

Capt. Katsumi J. Nakadate, formerly of East Chicago, Ind., was awarded the Bronze Star for "outstanding first aid work during a glider borne troop action last March, near Hussmanshof in Germany." Dr. Nakadate graduated from the University of Oregon Medical School, Portland, in 1939 and entered the service May 6, 1943.

PHYSICIANS SEPARATED FROM SERVICE

RELEASES REPORTED FROM ARMY, NAVY AND PUBLIC HEALTH SERVICE
PRIOR TO SEPTEMBER 1

Physicians	Date Discharged	Physicians	Date Discharged	Physicians	Date Discharged
Alabama		District of Columbia—Continued		Iowa	
Alexander, William W.....	April 1945	Neale, Claude L.....	March 1943	Beddoes, Morris G.....	April 1945
Dennis, Jephtha W.....	March 1945	Nelson, Kenneth R.....	February 1943	Cogley, John P.....	November 1944
Hagood, Daniel L.....	September 1943	O'Malley, John J.....	March 1943	Davis, George V.....	.....
Kennedy, William C.....	January 1945	Pringle, John A.....	February 1944	Dolmage, George H.....	January 1945
Newhauser, Mayer A.....	.....	Robinson, Murry M.....	November 1943	Faber, Luke A.....	.....
Arizona		Sawyer, Harold P.....	November 1944	Marinos, Harry G.....	April 1945
Brann, Harold W.....	.....	Siler, Joseph F.....	February 1944	Marker, John I.....	April 1945
Collins, Robert A.....	February 1945	Weidner, Edward T.....	June 1943	Stark, Callistus H.....	April 1945
Flood, Clyde E.....	March 1945	Whitted, Harold H.....	March 1945	Kansas	
Norris, Samuel R.....	February 1945	Illinois		Auchard, Virgil M.....	June 1945
California		Bay, Anthony.....	September 1943	Bell, Cleo D.....	March 1945
Adams, Morgan K.....	April 1945	Beanstock, Sam.....	April 1945	Cairns, Douglas W.....	February 1944
Babcock, Donald T.....	February 1945	Boykoff, Max P.....	March 1945	French, Sanford W.....	December 1944
Banks, Harry B.....	.....	Conforti, James H.....	February 1945	Goldstein, Isadore I.....	February 1945
Bell, Hugh W.....	March 1945	Cook, George W.....	January 1945	Johnston, Thomas E.....	.....
Brown, William E.....	.....	Costich, Kenneth J.....	.....	Manley, Joseph W.....	March 1945
Duckworth, John F.....	September 1943	Culhane, Thomas H., Jr.....	March 1945	Whittier, Raymond W.....	August 1945
Duncan, Ralph A.....	February 1945	Cummings, Claude W.....	September 1944	Kentucky	
Dwire, Francis B.....	December 1943	Davis, Loyal.....	.....	Adkins, Hugh P.....	March 1945
Evans, Howard F.....	January 1944	De Trana, Frank A.....	February 1943	Bowen, Albert S.....	September 1943
Guzak, Steven V.....	April 1945	Duggan, Daniel J.....	February 1944	Choate, Benjamin D.....	.....
Hantsch, Ferdinand K.....	.....	Frisch, Isaac J.....	April 1945	Holmes, Claude D.....	September 1944
Harkness, James T.....	March 1944	Garrett, Roy P.....	April 1945	Mayer, Frederick.....	.....
Hein, Gordon E.....	March 1945	Gibson, Paul W.....	October 1943	Miller, Joseph R.....	.....
Henry, Ziba L.....	September 1943	Grendeske, Joseph A.....	.....	Wilson, Foster M.....	January 1945
Herrmann, Albert J.....	.....	Grombacher, Curt S.....	February 1945	Wright, Alomzo W.....	May 1945
Isaak-Jantzen, Constantine J.....	July 1945	Grossman, Aaron.....	April 1944	Louisiana	
Laugeson, Lyder L.....	August 1943	Hackett, Joseph J.....	June 1944	De Matteo, Ignatius M.....	March 1945
Lawrence, Walter.....	.....	Hartford, William S.....	May 1943	Hirsch, Edward K.....	December 1944
Lengyel, Emile.....	March 1944	Haskins, William V.....	.....	Hunter, Matthew C.....	February 1944
Leveton, Albert L.....	February 1945	Horodko, Edward J.....	March 1945	McConnell, Jesse M.....	February 1945
Lewis, Charles H.....	April 1945	Horwitz, Harvey.....	September 1943	Moore, Tarleton F.....	.....
Long, Frank L.....	.....	Hungness, Norman O.....	February 1945	Quantz, Herman C.....	November 1944
Mansfeldt, John H.....	May 1943	Hunsaker, Curtis A.....	March 1944	Rea, Melvin O.....	.....
Mason, Christopher A.....	February 1944	Johnson, Carl A.....	March 1945	Rogers, Gordon K.....	April 1943
McMillian, Clemens W.....	October 1944	Karras, Ray W.....	February 1944	Vella, Joseph A.....	April 1944
Miltenberger, Vale E.....	January 1945	Keane, John W.....	June 1944	Woldenberg, Samuel C.....	November 1943
Murray, Alexander.....	October 1943	Koenig, Frank J.....	.....	Maryland	
Padden, Edmund H.....	April 1945	Kutza, Michael J.....	June 1945	Burwell, Albert C.....	April 1945
Parks, Ben K.....	.....	Lepak, Alfred J.....	.....	Cox, Matthew M.....	March 1945
Pasmore, John L.....	March 1945	Lucatorto, Vito R.....	.....	Crampton, Alexander B.....	.....
Praglin, Daniel.....	February 1945	Mayes, Corwin S.....	November 1944	Eleder, Franklin C.....	March 1945
Redpath, Nathaniel J.....	February 1945	Melendez, Stanis S.....	April 1945	Friedman, Henry T.....	February 1945
Roach, Richard A.....	.....	Miller, Louis.....	March 1945	Hulla, Jaroslav.....	March 1945
Scheffel, Alfred G.....	.....	Munson, Gordon B.....	February 1945	Hussey, Raymond.....	March 1945
Siegel, Lawrence S.....	.....	Patka, Joseph A.....	March 1945	Madigan, John J.....	November 1944
Sizer, Edgar R.....	February 1945	Petrone, Joseph.....	March 1945	Tobias, Herbert R.....	.....
Sonneland, Sidney G.....	February 1945	Reasoner, Mathew A.....	November 1944	Triplett, William H.....	April 1945
Treichler, Albert J.....	October 1943	Reich, Walter J.....	January 1943	Weems, George J.....	March 1945
Watts, Floyd J.....	February 1944	Rooney, James A.....	June 1943	Massachusetts	
Wilson, John W.....	.....	Seinfeld, Samuel G.....	.....	Baer, Victor.....	February 1945
Worener, Charles A.....	January 1943	Shultz, Gordon H.....	January 1944	Braverman, Aaron H.....	.....
Colorado		Siegel, Vivien P.....	April 1943	Edmonston, Raphael A.....	February 1945
Altieri, John A.....	April 1945	Simonelli, Mario.....	April 1945	Goldman, Max.....	February 1945
Atlas, Andor H.....	April 1945	Steinhoff, Carl F.....	April 1945	Gupill, Clifford R.....	February 1945
Buck, Carroll D.....	August 1945	Thoma, John W.....	.....	Hobica, Norman.....	February 1943
Coleman, John M.....	August 1943	Wagenseller, Samuel M.....	February 1945	King, Alfred E.....	June 1945
Coleman, John M.....	August 1943	Young, Francis W.....	March 1945	Kolozetski, John W.....	March 1945
Heine, Walter F.....	September 1943	Indiana		McElligott, Maurice J.....	March 1945
Heifrich, Jesse B.....	January 1944	Albertson, Frank P.....	January 1945	Nugent, John L., II.....	March 1945
McClure, Harlan E.....	March 1945	Atcheson, Bellfield.....	February 1945	Patton, William E.....	August 1944
Segard, Edwin S.....	September 1944	Balch, James F.....	January 1945	Perkins, George E.....	February 1945
Soda, William E.....	December 1943	Ballenger, William E.....	April 1945	Rovner, Miah H.....	October 1943
Stapleton, James A.....	April 1945	Geiger, Dillon D.....	February 1945	Steele, Fred, Jr.....	.....
District of Columbia		Helwig, Edward C.....	.....	Walsh, John F.....	November 1943
Bernheim, Julian R.....	September 1944	Hicks, James M.....	February 1945	Wyer, Harry G.....	December 1943
Borden, Daniel L.....	March 1945	Hord, Luther J. Jr.....	August 1945	Michigan	
Conger, Jason H.....	.....	Ikins, Ray G.....	February 1945	Barnes, Allan C.....	January 1945
Dewey, George.....	April 1945	Moore, George S.....	.....	Collins, James I.....	.....
Dollman, Clarence M.....	December 1944	Nisenbaum, Harold.....	October 1943	Clifford, John E.....	June 1943
Gustites, Francis W.....	March 1945	Panares, Solomon V.....	April 1945	Ducey, Edward F.....	October 1944
Huggins, John B.....	February 1945	Peak, Ira F.....	.....	Goldsmith, Joseph D.....	.....
Magee, James C.....	.....	Rendel, Harold E.....	January 1945	Griffith, Lucian S.....	February 1945
Marvin, Horace P.....	September 1944	Smith, Roy L.....	March 1945		
McKinney, Garfield L.....	August 1945	Stern, David H.....	April 1945		
Mordecai, Alfred.....	June 1944	Szabo, Stephen A.....	April 1945		
		York, Arthur F.....	March 1945		

PHYSICIANS SEPARATED FROM SERVICE

RELEASES REPORTED FROM ARMY, NAVY AND PUBLIC HEALTH SERVICE
PRIOR TO SEPTEMBER 1

Physicians	Date Discharged	Physicians	Date Discharged	Physicians	Date Discharged
Michigan—Continued		New York—Continued		Ohio—Continued	
Hammer, Edwin J.....	March 1945	Goldstein, Jacob W.....	March 1945	Johnson, Bernard L.....	April 1943
Kadin, Maurice.....	March 1945	Gould, Charles K.....	February 1945	Knislley, Alan D.....	March 1945
Lam, Conrad R.....	May 1944	Greenberg, Samuel A.....	May 1945	Kocour, James L.....	May 1945
LaRiviere, Joseph O.....	May 1944	Herold, Lewis J.....	April 1945	Krishna, Ikbal.....	February 1945
Levin, Meyer M.....	April 1945	Hoffman, William.....	March 1945	McKelvey, Robert H.....	April 1945
McLeod, Kenneth W.....	December 1943	Immordino, Santo.....	February 1945	Mynchenberg, George C.....	May 1943
Mitchell, Harold C.....	March 1945	Italiener, Harry D.....	February 1945	Nesemann, Reynold M.....	April 1944
Moran, Frank T.....	March 1945	Kaback, Harry.....	February 1945	O'Brien, John W.....	August 1944
Riley, Ray B.....	January 1940	Kennedy, Francis J.....	May 1945	Opaskar, Carl G.....	April 1945
Rosen, Robert.....	March 1945	Klein, Lionel.....	April 1945	Porbe, Clarence O.....	April 1945
Slevin, John G.....	March 1945	Kramer, Philip.....	April 1945	Post, Edward S.....	April 1945
Turnbull, Jack V.....	February 1945	Lanza, Anthony J.....	February 1945	Potter, Frederick C.....	April 1945
Van Riper, Steven L.....	February 1944	Lasher, Willis W.....	March 1945	Shaffer, Edwin F.....	July 1943
Weaver, Delmar F.....	February 1944	Leshne, Samuel.....	March 1945	Shacy, John R.....	December 1943
Weber, Manuel L.....	February 1944	Lindenauer, Harold J.....	February 1944	Stires, Frederick H.....	May 1944
Welsh, Herbert D.....	October 1943	Lookstein, Abraham.....	May 1945	Thomas, Harold B.....	February 1945
Winter, Frank E.....	April 1944	Loram, James F.....	May 1945	Tyler, George P. Jr.....	March 1945
Minnesota		Lucas, Hernon F.....	June 1943	Welch, Brent A.....	May 1945
Bohnsack, Ralph W.....	March 1945	Mancuso, Ferdinand.....	July 1944	Oklahoma	
Borden, William B.....	January 1943	Mangum, Clarke W. Jr.....	March 1945	Bond, Ira T., Jr.....	September 1943
Bosland, Howard G.....	January 1943	Mayer, Stephan K.....	January 1943	Crumrine, Leslie B.....	August 1944
Kirklin, Byrl R.....	February 1945	McDermott, William F.....	January 1943	Loughmiller, Robert F.....	August 1944
Kozberg, Oscar.....	February 1945	McEwen, Currier.....	September 1943	Love, Albert J.....	February 1945
Meyer, Ralph R.....	April 1945	Menuhin, Norbert.....	September 1943	McCaleb, Philip S.....	November 1944
Nauth, Bernard S.....	April 1945	Neske, Frederick W.....	February 1944	Murdoch, Raymond L.....	February 1945
Robertson, Frank O.....	March 1945	Overton, Jesse W.....	February 1944	Rayburn, Charles R.....	April 1945
Sax, Milton H.....	March 1945	Pacella, Bernard L.....	June 1943	Stevens, James W.....	February 1945
Schmidt, George F.....	July 1945	Rampond, James R.....	March 1945	Tisdal, William C.....	March 1945
Urberg, Sofus E.....	March 1945	Reich, Abraham J.....	July 1943	Pennsylvania	
Montana		Rosen, Alexander S.....	March 1945	Baltimore, Charles.....	February 1945
Farnsworth, Ray B.....	February 1945	Rosenberg, Arthur.....	April 1945	Brunacci, Alfred W.....	February 1943
New Jersey		Schenker, Abraham W.....	April 1945	Dabney, Albert S.....	December 1943
Burkett, Wendell J.....	February 1945	Schier, Woodrow W.....	November 1944	Eperjessy, Ernst Z.....	March 1945
Cetrulo, Gerald I.....	February 1945	Schimenti, Matthew L.....	April 1945	Evans, William H.....	January 1945
Duffy, Joseph F.....	March 1943	Schneider, Edward.....	July 1945	Fisher, Bernard.....	January 1945
Goldmacher, Hyman B.....	March 1943	Sciar, Meyer.....	July 1945	Fisher, Morris L.....	February 1945
Goldstein, Herman H.....	March 1943	Scobie, Russell B.....	January 1943	Fitz-Hugh, Thomas.....	January 1945
Green, Morris.....	July 1943	Seibel, Jacob M.....	June 1943	Ford, John J.....	January 1945
Griffin, Donald C.....	July 1943	Shaw, Herbert G.....	October 1943	Friedman, Jacob T.....	February 1945
Holman, Francis W.....	March 1945	Sherman, Bernard K.....	March 1943	Goldman, Max R.....	February 1945
Hunter, Harold H.....	July 1944	Sirota, Jonas H.....	May 1945	Guess, Emanuel M.....	June 1943
Kahn, Leo.....	April 1945	Skinner, Louis C.....	April 1945	Hendricks, Charles S.....	December 1944
Levine, David B.....	April 1945	Snitkoff, Morris C.....	April 1945	Hitchens, Arthur P.....	October 1944
McPherson, Malcolm E.....	April 1945	Solby, Bruno.....	November 1943	Hoffman, William L.....	January 1944
Schenker, Benjamin N.....	April 1945	Somberg, Harold.....	February 1943	Israel, Isaac J.....	October 1943
Schwarzwald, Irving.....	September 1943	Spiegler, Arnold A.....	February 1943	Katzin, Isadore.....	March 1945
Stewart, David F.....	March 1945	Spinuzza, Joseph Y.....	February 1945	Lanz, Kenneth P.....	March 1945
Way, Clarence W.....	February 1945	Spitzer, Nat D.....	June 1943	Laws, Elbert H.....	January 1943
New York		Steady, George H.....	August 1943	Leavitt, Milo D.....	March 1945
Apfel, Kalman.....	December 1944	Stewart, Neville E.....	April 1945	Lewis, Arthur K.....	April 1943
Arnone, Peter R.....	February 1945	Talbot, Theodore J.....	March 1945	McCluskey, Edmund R.....	February 1943
Backer, Max B.....	January 1945	Tumolo, Mauro A.....	June 1943	McCormick, John J.....	April 1944
Basora, Ramon E.....	March 1945	Van Alstyne, Walter K.....	November 1943	McGlynn, Patrick J.....	April 1945
Belden, Alvin E.....	March 1945	Vogel, Walter.....	February 1945	Miller, Earl B.....	April 1945
Bell, Julius W.....	March 1945	Weinauer, Herbert.....	February 1945	Mira, Joseph A.....	April 1945
Bennett, Robin I.....	March 1945	Weymuller, Louis E.....	February 1945	Ozellers, Edward I.....	April 1943
Berlowitz, David M.....	March 1945	Wilshusen, Herbert F.....	April 1943	Pompizzi, Ermin D.....	January 1943
Bissell, Merlyn A.....	March 1945	Wineburgh, Jacob J.....	February 1945	Ransavage, Leo A.....	January 1943
Blumberg, Ralph.....	February 1945	Young, Josef.....	April 1945	Reed, Joe G.....	February 1945
Bolten, Richard S.....	July 1943	Zander, Ernst.....	January 1944	Resnick, George J.....	October 1943
Cassidy, Michael A.....	June 1944	Zuckerman, William.....	March 1945	Riofski, Anthony F.....	March 1945
Clark, James T.....	April 1945	Ohio		Runsey, John L.....	March 1945
Cochran, Albert H. Jr.....	April 1945	Berry, Harry R.....	August 1943	Runkle, Stuart C.....	December 1943
Cohen, Lester.....	February 1945	Beltz, Robert V.....	December 1944	Rutherg, Franklin L.....	March 1945
Collins, Charles H.....	February 1945	Brumbaugh, John D.....	April 1944	Sackey, Maurice S.....	March 1945
Daniel, Richard L.....	February 1945	Bryant, Maurice E.....	March 1944	Schatz, David H.....	February 1944
Dankberg, Julius.....	April 1945	Buckner, Leslie M.....	February 1944	Schindler, John A.....	February 1945
Davidson, Sol C.....	April 1943	Burstein, Theodore.....	February 1944	Schramm, Francis M.....	February 1945
Davis, Charles F.....	December 1944	Czarnecki, Casimir J.....	March 1945	Staman, Harry.....	October 1943
Davis, Harold.....	March 1945	Faul, William L.....	February 1945	Starkes, Carlton.....	March 1945
Dewey, Christian H.....	October 1944	Fay, James J.....	February 1945	Steele, Robert.....	April 1943
Eisner, Morris T.....	April 1945	Frolkis, Nathan P.....	September 1944	Sugerman, Joseph R.....	May 1945
Foldes, Andrew.....	April 1945	Gilbert, Norton H.....	February 1945	Taggart, George W.....	March 1943
Frucht, Arthur L.....	February 1945	Green, Warren W.....	September 1944	Thomas, Harry B.....	April 1945
Gilbert, William V.....	June 1943	Greenwell, Charles.....	March 1945	Walnista, Frank J.....	April 1945
Gilberty, Richard P.....	March 1945	Hanysh, Myron C.....	January 1945	Wilson, Thomas R.....	April 1945
		Hoiston, Guilford B.....	March 1945	Zemo, Peter.....	April 1945

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Name	Rank	Address	Name	Rank	Address
Alabama			Illinois—Continued		
Barnes, Rhett Goode, Major, Winfield			Leventhal, Michael L, Lt Col, 924 Hyde Park, Chicago		
Minot, Wallace D, Capt, Phippen St, Eutaw			McKinley, H A, Lt Col, 597 Glenview Ave, Highland Park		
Arizona			McLean, Franklin C, Lt Col, 5545 University Ave, Chicago		
Jordan, Fred C Jr, Capt, 910 W Portland St, Phoenix			MacDonald, Hugh, Lt Col, RR 1, Glenview		
Arkansas			Malow, Louis, Capt, 424 Oakdale Ave, Chicago		
Kelly, Robert M, Capt, Sheridan			Menaker, Gerald J, Lt Col, 6201 S Hermitage Ave, Chicago		
King, Jack A, Capt, Elaine			Monroe Clarence W, Lt Col, 837 Hayes Ave, Oak Park		
Moble, High, Major, Searcy			Murfin Maurice D, Major, 312 S McClellan, Decatur		
California			Indiana		
Bivins, Thomas E, Capt, 316 Main St, Sausalito			Ake Loren F, Major, 102 Mulberry St, Cambridge City		
Brem, Thomas H, Capt, 1930 Wilshire Blvd, Los Angeles			Bams, Ralph H C, Capt, 127 E Washington St, Fairmount		
Buehler, George S, Major, 105 E Philadelphia St, Wintier			Boren, Paul R, Capt, Poseyville		
Bush, George, Capt, 320 Pine Ave, Long Beach			Carrel, Francis E, Major, Country Club Park, Lebanon		
Cooper, Alfred J, Major, 512 Commonwealth Bldg, San Diego			Fox, Francis H, Capt, 417 Division St, Bicknell		
Cronin, Daniel J, Lt Col, 2187 35th Ave, San Francisco			Geider, Roy A, Capt, 943 Arlington Ave, Indianapolis		
Feusner, Henry D, Capt, 3591 Ocean Front Walk, San Diego			Glock, Maurice E, Lt Col, 1913 Forest Park, Ft Wayne		
Gerbode, F L A, Lt Col, 2560 Divisadero St, San Francisco			Holdeman, Richard W, Capt, 404 LaFayette Blvd, South Bend		
Greene, William W, Major, 2965 25th Ave, San Francisco			Hummel, Russel M, Capt, Rural Route 1, Marion		
Hilty, Henry L, Major, 6206 Crenshaw Blvd, Los Angeles			Humphreys, Joe E, Capt, Indianapolis City Hosp, Indianapolis		
Hodgson, Henry M, Capt, 384 Post St, San Francisco			Inlow, Herbert H, Major, 127 N Harrison, Shelbyville		
Johnson, Richard P, Major, 5267 Boyd Ave, Oakland			King, Peter C, Major, Swazee		
Jones, Glen E, Major, 106 S Edgemont, Los Angeles			Lasalle, Robert M, Lt Col, 442 N Wabash St, Wabash		
Kirk, Arthur H, Capt, 3473 Home Ave, Fresno			Libnoch, Casimir L, Capt, 404 S Chapin St, South Bend		
Kohlmoos, Heinrich W, Capt, 3270 Kempton Ave, Oakland			McElroy, James S, Major, 1230 Audubon Rd, New Castle		
Lindner, Harold H, Major, 31 Lagunitas Dr, San Francisco			Mericle, Earl W, Major, 1040 N Delaware St, Indianapolis		
McKenna, Stephen E, Major, 5676 York Blvd, Los Angeles			Montagnino, Joseph F, Capt, 2023 1/2 N St, Logansport		
Mason, Charles E, Lt Col, 2221 Olive St, Temple City			Iowa		
Colorado			Almquist, Reuben E, Capt, Albert City		
Allen, Kenneth D A, Col, 452 Metropolitan Bldg, Denver			Bjork, Floyd J, Capt, Keota		
Dickey, Lawrence D, Capt, 618 W Mountain Ave, Ft Collins			Brody, Sidney, Lt Col, 228 1/2 E Main St, Ottumwa		
Dugan, William D, Major, Hotchkiss			Burbridge, Glen E, Major, Logan		
Mossberger, Joseph I, Capt, Porter Hos & San, Denver			Egbert, Daniel S, Major, 23 W 5th St, Atlantic		
Connecticut			Entringer, Albert J, Capt, 585 Seminary St, Dubuque		
Alpert, Max, Major, 881 Lafayette St, Bridgeport			Giegerich, Walter F, Major, 1790 Grace St, Dubuque		
Carey, William C, Major, 136 Eaton Ave, Meriden			Houlahan, Francis W, Capt, Box 394, Ackley		
Higgins, Harold G, Capt, 64 W River St, Milford			Kaplan, David, Capt, 203 Terrace Apartments, Sioux City		
Florida			Keith, John J, Major, 1184 11th St, Marion		
Davey, Walter F, Capt, 75 W Third St, Box 475, Stuart			Kansas		
Jacob, Harold J, Capt, 1500 E Gonzalez St, Pensacola			Allen, Max S, Major, Univ Kans Hosp, Kansas City		
Georgia			Ashley, George L, Capt, 211 W Main, Chanute		
Bailey, Harry E, Major, Blakely			Carlson, Marlin W, Major, Ellinwood		
Deal, Albert M, Major, 223 S Main St, Statesboro			Fisher, James B, Capt, 419 N Pinecrest, Wichita		
Elliott, Cecil B, Capt, Grady Hosp, Atlanta			Fry, Gerald A, Capt, Wichita Hosp, Wichita		
Gilsson, Charles S Jr, Major, 1766 Rogers Ave, S W, Atlanta			Gale, Norman A, Capt, 1185 College Ave, Topeka		
Mauldin, John T, Major, 239 Moreland Ave NE, Atlanta			Grosjean, Wendell A, Major, Winfield		
Idaho			Kelley, George M, Capt, Lake City		
Brothers, William W, Col, 730 Garfield St, N Pocatello			Kuhn, W F, Major, 5312 Belinder Rd, Route 5, Kansas City		
Duncan, David G, Capt, Council			McConchie, James E, Capt, 109 E 4th St, Washington		
Hatch, Harvey A, Capt, 149 12th St, Idaho Falls			Kentucky		
Klinger, Marion Vorpe, Capt, 2414 Woodlawn Ave, Boise			Baker, Simeon S, Capt, U S Coal Coke Co, Lynch		
Meyers, Isadore, Major, 1516 Harrison Blvd, Boise			Bradbury, John W, Capt, Shepherdsville		
Illinois			Bradshaw, Wilbur V, Major, Box 185, Stanford		
Abrams, Morris, Lt Col, 1516 S Tripp St, Chicago			Clinton, Harley W, Major, 620 Main St, Williamsburg		
Bass, Howard H, Lt Col, 34 S Menard Ave, Chicago			Garrett, Evan LaR, Major, 1409 Olive Blvd, Murray		
Blocksom, Berget H Jr, Major, 2210 Harlem Blvd, Rockford			Gordimer, John D, Capt, 806 Heyburn Bldg, Louisville		
Bohan, John E, Capt, Toulon			Guerrant, Edward O, Capt, 217 Main St, Winchester		
Bornemeier, Walter C, Major, 4013 Milwaukee Ave, Chicago			Handley, John D, Lt Col, Hodgenville		
Brown, Arthur W, Major, 2022 Montrose Ave, Chicago			Lowrey, George E, Capt, Harrodsburg		
Bullock, Weldon K, Lt Col, 5052 Maine, N Chicago			Lucas, Marvin A, Major, 2721 Dumesnil St, Louisville		
Burkhart, George H, Capt, 605 W 6th St, Benton			McKee, Willis P, Capt, Eminence		
Burkhart, Jean M, Capt, 406 S Main St, Benton			Louisiana		
Butler, William J, Capt, 203 Pennsylvania, Urbana			Brocato, Joseph M, Capt, 4630 Banks St, New Orleans		
Curtis, William W, Capt, 303 E Superior St, Chicago			Brownell, Charles R Jr, Capt, Morgan City		
Endres, Fred C, Lt Col, 3511 Prospect Rd, Peoria Heights			Chauvin, Eustace V, Capt, 309 Jefferson Blvd, Lafayette		
Erenburg, Leon M, Major, 420 W Wrightwood Ave, Chicago			Coyle, Elda S, Major, Plain Dealing		
Gardner, Leon P, Major, St Charles Hosp, Aurora			McElwee, Newell E Jr, Capt, Crowville		
Hanford, Roy E, Capt, Cook County Hosp, Chicago			McFarland, O W, Major, 498 Lake Shore Dr, Baton Rouge		
Hanson, Martin F, Major, 315 N Orange St, Havana			Maryland		
Illyes, Roscoe O, Major, Lawrenceville			Brown, Manuel, Capt, 3635 Reisterstown Rd, Baltimore		
Jedicka, Frank L, Capt, 5313 West 25th St, Cicero			Cockerham, H L Jr, Capt, Bon Secours Hosp, Baltimore		
Kennedy, Richard L, Major, 2440 Lakeview Ave, Chicago			Gervig, Walter H Jr, Lt Col, Oak Pl, N Charles, Baltimore		
Javier, Frank J, Major, 500 Addison St, Chicago			Knauf, George M, Major, Rising Sun		
			Lusby, Frank F, Capt, 170 W Washington, Hagerstown		
			Mackowiak, S C, Capt, 2912 Dunmurry Rd Apt B, Dundalk		
			Mur, Bennett W, Capt, 302 Southway, Baltimore		

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Name	Rank	Address	Name	Rank	Address
Massachusetts			New Jersey—Continued		
Austen, George Jr., Lt. Col.		21 Hawthorn Rd., Brookline	Brooklyn Henry A., Lt. Col.		365 Osborne Terrace, Newark.
Badger, Theodore L., Lt. Col.		45 Cedar Rd., Chestnut Hill	Cunningham, Joel B., Major.		801 Cooper, Camden
Dame, Lawrence R., Major.		9 Orchard St., Greenfield	De Marco, Silverino V., Capt.		1818 Boulevard, Jersey City.
Dashel, Oscar A., Major.		39 Greychiff Rd., Brighton	Dodge James T., Capt.		1819 S. Broad St., Trenton.
Durant, John E. C., Major.		564 Union St., New Bedford	Douglas, Frederick W., Capt.		21 Central Ave., Montclair.
Gurwitz, Jack, Major.		97 St. Paul St., Brookline	Fager, Rudolph O., Capt.		53 Park Pl., Bloomfield
Harrison, John H., Lt. Col.		49 Monmouth St., Brookline	Golden, Clement H., Capt.		109 Weequahic Ave., Newark
Henderson, John W. Jr., Major.		766 Pleasant St., Worcester	Jacobs, William, Capt.		1013 Clinton Ave., Irvington
Hoobler, Sibley W., Capt.		306 Riverway, Boston	Karshmer, Nathan, Capt.		131 N. 6th Ave., Highland Park
Jacobs, Harry, Capt.		95 Thoreau St., Concord	Leonard, Bernard F., Major.		307 Salem Ave., Burlington.
Kilham, Lawrence, Capt.		42 Cedar St., Boston	Margulies, Charles, Major.		188 High St., Nutley
Leonard, Field C., Capt.		Shore St., Falmouth	Marrocco, William A., Major.		47 Ward St., Paterson
Michigan			New York		
Appel, Ben A., Capt.		Standish	Ayer, Wardner D., Lt. Col.		614 University Ave., Syracuse
Birch, William G., Major.		334 E. Spruce St., Sault Ste. Marie	Bajohr, Albert, J., Major.		160-19 Sanford Ave., Flushing
Carpenter, William S., Capt.		611 Wilcox St., Dearborn	Bednarkiewicz, I. A., Major.		972 Francis Ave., Schenectady.
Crawford, Kenneth L., Major.		1532 Grand Ave., Kalamazoo	Berger, Julius M., Major.		5630 Fieldston Rd., New York
Culver, Dean T., Capt.		72 Division St., Coldwater	Blauvelt, Willard J., Capt.		Port Byron
Fahick, Mordecai L., Major.		15141 Plymouth Rd., Detroit	Bleichfeld, Samuel, Lt. Col.		119 Highland Ave., Buffalo
King, Frank A. Jr., Capt.		2100 Colfax, Benton Harbor	Cacioppo, Joseph J., Capt.		1030 Greene Ave., Brooklyn
Loranger, Guy L., Major.		1022 Yorkshire Rd., Grosse Pointe	Cantor, Milton, Capt.		239 Hart St., Brooklyn
McCaulty, Morris D., Major.		12341 Stoepel, Detroit	Cantor, Philip J., Capt.		1417 Ave. K, Brooklyn.
Miller, Harold A., Major.		218 S. Ann Arbor St., Saline	Carroll, Hubert F., Capt.		Indian Lake, Hamilton County
Minnesota			Cassebaum, William H., Major.		229 E. 79th St., New York
Cochrane, B. B., Lt. Col.		1169 Rice St., St. Paul	Chasen, William H., Major.		697 Green Ave., Brooklyn
Delmore, John L. Jr., Capt.		Roseau	Danforth, Edward P., Major.		33 River St., Sidney.
Doman, Victor W., Capt.		Lakefield	Davis, John Staige Jr., Lt. Col.		135 E. 65th St., New York.
Farsht, Irving J., Lt. Col.		1419 W. 27th St., Minneapolis	Dolce, Joseph R., Major.		496 Swan St., Buffalo
Fleshe, Bernard A., Major.		Lake City	Fairchild, Robert, Capt.		26 E. Main St., Marathon
Gleason, Wallace A., Lt. Col.		88 N. Cleveland Ave., St. Paul	Farr, Richard S., Lt. Col.		207 Clarke St., Syracuse.
Johnson, Allen G., Major.		224½ E. Second St., Hastings	Frank, Joseph J., Major.		121 Wilson St., Syracuse
Karn, Jacob F., Major.		Ortonville	Goffen, Bernard S., Capt.		518 Monroe St., Brooklyn
Kettlewell, Ralph B., Lt. Col.		Sauk Centre	Hefter, Maxwell S., Capt.		126 N. Main St., Spring Valley.
Korda, Henry A., Capt.		902 109th Ave., W. Duluth	Hindson, George N., Capt.		4 Norton St., Jordan
Maytun, Charles K., Lt. Col.		1233 1st St. S. W., Rochester	Hun, Henry H., Lt. Col.		149 Washington Ave., Albany.
Miligan, Arthur M., Lt. Col.		Iron Exchange Bldg., Brainerd	Jacobs, Matthew H., Capt.		1422 Park Place, Brooklyn
Mississippi			Jasper, Harry, Capt.		737 Madison Ave., Albany.
Canizaro, Vito J., Major.		1301 Washington St., Vicksburg	Katz, Joseph, Capt.		Lyons Falls
Chambers, Wallace L., Major.		Pickens	Kelly, Miles W., Capt.		Main St., Avoca
Collum, Tillman B., Captain.		Golden	Kiely, James A., Lt. Col.		2 Tremont Ave., Binghamton
Friedman, Harold D., Major.		Senatobia	Kneeland, Yale Jr., Col.		33 East 70th St., New York
Johnson, Wilhelm M., Major.		Dawson	Korn, Samuel M., Capt.		4217 Sea Gate Ave., Brooklyn
Missouri			Kroehler, Robert A., Capt.		137-10 241st St. Rosedale, L. I.
Barker, Lawrence F., Capt.		6240 Rosebury St., St. Louis.	Kunkel, Robert S., Capt.		20 1st Ave., Gloversville
Cook, Robert J., Captain.		7068 Maryland, St. Louis	Lasner, Jack, Major.		1233 44th St., Brooklyn
Duckett, Thomas G., Major.		Sheldon	La Sorsa, Francis P., Major.		44 W. 9th St., New York
Elliot, William H. J., Capt.		City Hosp. St. Louis	Leibarg, John I., Major.		1523 Madison Ave., New York
Forsythe, Robert W., Capt.		U. of Kansas City	Levinson, Leonard J., Major.		79 Sunnyside Ave., Brooklyn
Grossman, Marvin, Major.		5845 A. Terry Ave., St. Louis	Lombardi, Anthony L., Major.		33 Jackson St., Little Falls
Growdon, John A., Major.		622 W. 67th St., Kansas City	McGowan, John F., Capt.		550 Forest Ave., Buffalo
Harless, Morris S., Major.		6844 Cherry St., Kansas City	McIver, Monroe A., Major.		32 Fair St., Cooperstown
Harrington, Paul R., Major.		General Hospital, Kansas City.	MacFee, William F., Col.		1215 5th Ave., New York
Harwell, J. Lester, Major.		201a S. Main St., Poplar Bluff.	Mancuso, Natale P., Capt.		136 Hampshire St., Buffalo
Hogg, Garrett Jr., Major.		Cabool	Maurer, John H., Capt.		470 Raymond Ave., Rockville Center.
Lundgren, Fred H. Jr., Major.		432 W. 67th St., Kansas City	Meister, Peter C., Major.		144 Durham Ave., Buffalo
McIntire, Landon R., Capt.		216 N. Main St., St. Charles	Merrill, Frederick H., Capt.		445 E. 84th St., New York
Mulliniks, Edward C., Major.		Caruthersville	Meyers, Doug S., Major.		44 Maiden Lane, Kingston
Montana			Mira, Anthony A., Capt.		25-11 42 St., Astoria
Duchesneau, Fernand P., Capt.		912 W. Diamond St., Butte	North Carolina		
Hynes, John E., Major.		Rimrock Rd., Billings	Cornell, William S., Lt. Col.		Medical Bldg., Charlotte
Lindstrom, Everett H., Major.		850 Helena Ave., Helena	Floyd, Anderson G., Capt.		Whiteville
Nebraska			Hawes, George A., Capt.		1629 Providence Rd., Charlotte
Anderson, M. T., Major.		509 Wood Ave., Carter Lake, Omaha	Hunt, Walter S. Jr., Capt.		Res. Hosp., Raleigh
Dav, Robert J., Major.		2711 N. 55th St., Omaha	McIntosh, Donald M., Jr., Major.		Marion
Eaton, Wilbur S., Capt.		419 N. 9th St., Plattsmouth	Melcher, Willis A., Capt.		Woodard-Herring Hosp., Wilson
James, Louis D., Lt. Col.		Oxford	Ohio		
Kumel, Joseph Jr., Lt. Col.		1012 Larnue St., Alliance	Archer, M. C., Major.		140 W. Washington St., Medina
New Jersey			Baird, Warren A., Major.		2050 Parkside Blvd., Toledo.
Balogh, William A., Capt.		315 Front St., Dunellen	Berger, Peary B., Capt.		215 S. Main St., Englewood
Bartolmi, Frank J., Major.		356 Grant St., Phillipsburg	Bolton, Ralph D., Major.		Mercy Hospital, Canton
Betts, Richard W., Capt.		22 N. Main St., Medford	Braumbaugh, J. J., Lt. Col.		626 Walnut Ave., N. E., Canton.
Black, Max S., Capt.		1320 St. George Ave., Linden	Bunn, Simon, Capt.		10108 Hampden St., Cleveland
Boelli, Emile H., Capt.		614 15th St., Union City.	Calo, Frank J., Capt.		12301 Forest Ave., Cleveland
			Cunningham, Walter A., Major.		401 Market St., Steubenville
			Dameron, Wesley P., Capt.		6624 Parkland Ave., Cincinnati
			Danchuk, Sol A., Capt.		708 Bedford Pl., Columbus

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Name	Rank	Address	Name	Rank	Address
Ohio—Continued			Rhode Island—Continued		
Dole, John Addis Jr., Major, 713 Center St., Ironton.			Lawson, Herman A., Col., 12 Everett Ave, Providence.		
Dunn, David D., Capt., Cleveland Clinic Found., Cleveland.			Malone, John M., Capt., Quaker Hill, Portsmouth.		
Eckstein, Richard W., Capt., Lakeside Hosp., Cleveland.					
Edelstein, Joseph B., Major, 638 Winthrop St., Toledo.			South Carolina		
Ferraro, William R., Major, 1211 26th St., Canton.			Finger, Elliott, Major, Marion.		
Freedman, Mark A., Lt. Col., 74 W. Ninth Ave., Columbus.			Hanahan, Ralph B., Major, Florence.		
Fritz, Ward A., Major, 901 W. Liberty St., Wooster.			Holt, Benton B. Jr., Major, Roper Hosp., Charlestown.		
Gallen, John J., Major, 262 Sherborne Dr., Columbus.			King, Lebby B., Capt., 215 E. Main St., Lake City.		
Gettman, Robert L., Major, 723 Mt. Vernon Ave., Marion.			MacLaughlin, William T., Major, Route 1, Chester.		
Hanger, Irwin C., Major, University Hospitals, Cleveland.					
Harris, Frank H., Capt., 918 Zane Highway, Martins Ferry.			South Dakota		
Humphries, John K., Major, P.O. Box 236, Belle Center.			Bliss, Robert J., Major, 1325 W. 12th St., Sioux Falls.		
Jennings, William M. J., Major, 5693 N. Main St., Sylvania.			Bloemendaal, Gerrit J., Major, Ipswich.		
Johnson, Festus A., Major, 7 W. Bowery St., Akron.			Larisey, Carr T., Major, P. O. Box 42, Hampton.		
Kaplan, Ronald R., Major, 2123 Remock Rd., Cleveland Hts.					
Kolb, Thomas V., Major, Chillicothe St., South Charleston.			Tennessee		
Kreindler, Louis, Major, 710 Greenwood Ave., Cincinnati.			Akin, Robert L., Capt., Monterey.		
Lawrence, Leslie L., Major, 245 22d St., N.W., Canton.			Avent, Charles H., Lt. Col., 1594 Vinton Ave., Memphis.		
Lazzari, John H., Lt. Col., 1701 Republic Bldg., Cleveland.			Brannen, Frank S., Capt., 1810 Chamberlain Ave., Chattanooga.		
Limbacher, Henry P., Major, 15701 Detroit Ave., Lakewood.			Brown, Robert H., Capt., 120 Center St., Kingsport.		
Mansfield, Robert D., Major, 117 Park Ave., S.W., Canton.			Byars, Stevens, Major, Spring Creek.		
Marcus, Louis L., Major, 1924 Consul St., Toledo.			Dreibelbis, William H., Capt., Milton Ave., Chattanooga.		
Marshall, John H., Lt. Col., 225 W. Sandusky St., Findlay.			Frazier, John W. Jr., Major, 928 Broad St., Nashville.		
Montgomery, Edward L., Major, Seyfert Ave., Circleville.			McPeake, William T. Jr., Capt., Morris Chapel.		
Oklahoma			Texas		
Curry, John R., Major, Blackwell.			Allamon, Emmett L., Major, Parkland Hosp., Dallas.		
Ellison, Gayfree Jr., Capt., 538 Chautauqua, Norman.			Beaver, Norman B., Major, 4329 Fairfax, Dallas.		
Fowler, Arthur Jr., Major, 1227 W. Wynnewood St., Sulphur.			Crawford, John McC., Capt., Carrizo Springs.		
Hamm, Leslie T., Major, 2309 N.W. 25th St., Oklahoma City.			Duncan, Robert W., Major, 400½ College, Ft. Worth.		
LeHew, Elton W., Lt. Col., Pawnee.			Good, Wealthy W., Capt., c/o So. Texas Nat. Bk., San Antonio.		
Livingston, Lawrence G., Lt. Col., 408 Summit, Lawton.			Guerra, Gilberto A., Capt., 422 E. Van Weck St., Edinburg.		
Miles, John B., Major, 501 W. Georgia, Anadarko.			Hopper, John J., Capt., Stanton Clinic Hosp., Stanton.		
Oregon			Jones, Malcolm A., Col., Box 272, Hempstead.		
Durno, Edwin R., Major, 1913 Hillcrest Rd., Medford.			Lehmann, Cornelius F., Col., 336 Terrell Rd., San Antonio.		
Gentle, Hjalmar T., Lt. Col., 19-S. Barneburg Rd., Medford.			Lerner, Ben L., Capt., 507 E. Mulberry St., San Antonio.		
Kerby, Kenneth E., Capt., Nyssa.			McKee, Robert D., Major, St. Joseph Hosp., Fort Worth.		
Menkel, Carlson B., Capt., 888 Main St., Sheridan.			Utah		
Pennsylvania			Clark, John H., Major, U. S. Bank Bldg., Vernal.		
Ajac, John C., Major, 115 Carlisle St., Hanover.			Vermont		
Averill, Roy S. Jr., Capt., 726 Wills St., Mt. Washington Sta.			Emerson, Burton L., Major, Johnson.		
Beerman, Curtis A., Major, 2801 Fourth Ave., Altoona.			Harwood, Clifford B., Capt., Rupert.		
Benson, Paul J., Major, 502 W. Mahoning St., Punxsutawney.			Virginia		
Blair, Albert J., Major, 77 S. Morris St., Waynesburg.			Boyce, Oren D., Capt., Rural Retreat.		
Brown, Albert W., Major, 278 N. Lansdowne Ave., Lansdowne.			Easley, Charles A. Jr., Capt., 326 Robertson Ave., Danville.		
Butler, William S., Capt., 14½ Main St., Wellsboro.			Ely, Thomas S., Capt., Box 194, Jonesville.		
Campbell, Joseph L., Lt. Col., Ulster.			Hurt, Holcombe H., Lt. Col., 31 Columbia Ave., Lynchburg.		
Caplan, Milton L., Capt., 710 Park Ave., Ellwood City.			Hurt, Ira H., Col., 418 Greenwood Rd., Roanoke.		
Cappola, Michael T. Jr., Major, 312 Wharton St., Philadelphia.			McFadden, Roscoe L., Capt., Riverside Hosp., Newport News.		
Dalrymple, Richard Y., Major, Hanover GH, Hanover.			Manson, Richard C., Major, 111 Seneca Rd., Richmond.		
Dawe, George Griffith, Major, 39 N. Main St., Mifflintown.			Washington		
Fawcett, Robert M., Capt., Magee Hosp., Pittsburgh.			Franz, Francis W., Major, 5018 E. 41st St., Seattle.		
Friend, Arthur, Capt., 422 Main St., Dupont.			Graham, Kenneth D., Major, 1015 North I St., Aberdeen.		
Goldberg, Louis, Capt., 516 Franklin Ave., Phoenixville.			Hunter, Maxwell R., Major, 404 Capitol Way, Olympia.		
Gowen, Leo F., Capt., 2538 W. Diamond St., Philadelphia.			Jarvis, Fred J., Capt., 635 38th Ave., Seattle.		
Hampton, Louis Jennings, Lt. Col., 500 Queen St., Stroudsburg.			Washington, D. C.		
Harnish, Robert L., Major, 102 South 4th St., Denver.			Greear, J. N. Jr., Lt. Col., 3532 Edmunds St., N.W., Washington		
Hopewell, Edward L., Major, 101 High St., Strasburg.			West Virginia		
Humphrey, Harold I., Major, Slippery Rock.			Ashworth, Harold B., Capt., 906 Third St., Moundsville.		
James, Alfred E., Capt., Beavertown.			Bradford, Bert J., Lt. Col., Medical Arts Bldg., Charleston.		
Katz, Albert H., Capt., 2 Heinz Terrace, Sharpsburg.			Brown, James D., Capt., Romney.		
Katz, Martin E., Major, 100 E. Market St., Mount Union.			Friedman, Norman, Major, Longacre.		
Kaufman, Harry, Capt., 385 Norris, Sharon.			Martin, Joseph E. Jr., Major, 420 Davis St., Elkins.		
Kaufman, Irwin L., Capt., 1529 Beechview Ave., Pittsburgh.			Moore, Bernard J., Capt., Carolina Ave., Chester.		
Kenny, Clare C., Capt., Fifth St., Matamoras.			Wisconsin		
Klingensmith, Paul O., Major, 507 N. Latch's Lane, Merion Sta.			Glynn, James D., Major, 437 W. Hickory St., Lancaster.		
Knoll, George M., Capt., Allentown Hosp., Allentown.			Kocovsky, Clarence J., Capt., 6219 W. Lloyd St., Wauwatosa.		
Krajeski, D. S., Capt., 61 N. Washington St., Wilkes-Barre.			Little, William W., Capt., Washington Island.		
Large, John S., Major, 207 S. Center Ave., Somerset.			Lochen, Everette L., Major, 233 South St., Waukesha.		
Lyon, Edward Jr., Major, 804 Hawthorne Ave., Williamsport.			Middleton, William S., Col., 2114 Adams St., Madison.		
Margotta, Victor J., Capt., 137 E. Pine St., Dunmore.					
Mateer, Eugene H., Capt., State Col. Pa., 141 S. Beaver Ave.					
Morocco, John D., Major, 116 E. North Ave., N.S., Pittsburgh.					
Rhode Island					
Curren, Levi A., Capt., 789 Park Ave., Cranston.					
Gordon, John H., Major, 68 Oswald St., Pawtucket.					
Jones, Walter S., Major, 165 Waterman St., Providence.					

MISCELLANEOUS

HOSPITAL WORKERS NEEDED

More than 130,000 professional and nonprofessional workers, in addition to more trained volunteer nurses' aides, are needed in the nation's civilian hospitals. The Public Health Service of the Federal Security Agency, the War Manpower Commission and the Veterans Administration are sponsoring a recruiting drive in cooperation with the American Red Cross, the National Nursing Council for War Service and the American Hospital Association. Urgently needed at once are 30,000 graduate nurses for general, tuberculosis and psychiatric hospitals, 8,000 graduate nurses for public health nursing, 2,000 graduate nurses for Veterans Administration hospitals (this is in addition to 3,000 more who will be needed by January 1947) and 90,000 non-nursing hospital workers. Besides these paid workers, 40,000 already trained volunteer nurses' aides are needed to augment the number now giving many hours of service to the hospitals.

Within a few months large numbers of nurses released by the military services and closed war plants may transfer their services to hospitals, but no appreciable increase in the number of women taking such positions is expected immediately. Of the 13,000 industrial nurses, many are expected to remain in the industrial field. Of the Army and Navy nurses released, it is expected that many will take well deserved rests before they take up new duties in civilian hospitals or as private nurses. The first classes of cadet nurses, now in training, will not become graduate nurses until next July. The need for the additional nurses is due to the patient load, which is heavier today than at any time since 1940, as well as to the withdrawal in the past of nurses for the armed services and war plants.

At the request of the Surgeon General the Public Health Service, the American Hospital Association recently conducted a survey to learn the extent of personnel shortages and to determine the seriousness of the need. The survey, which covered 1,060 hospitals affiliated with the association, reported that 23 per cent had closed beds, wards and sections as a result of the shortage of nurses and other personnel. Hundreds of hospitals still have long waiting lists of patients requiring hospitalization. This is in spite of the fact, the survey report stated, that many nurses are working longer shifts and most of them under unwholesome tension.

Hospitals are crowded more than ever for three principal reasons, the Office of War Information was told: 1. Higher incomes and hospitalization plans have made hospital care financially possible for many who could not previously afford it. 2. The population is growing: babies born in hospitals increased from 1,214,492 in 1940 to 1,919,976 in 1944. 3. An overworked doctor can attend more patients when they are brought together in one hospital under professional nursing care than if left in scattered homes. The trend has been strongly in this direction.

The association survey disclosed that in 1944 general hospitals with schools of nursing attached were able to provide patients only thirty-five minutes care by graduate staff nurses every twenty-four hours, or about half the minimum. The remainder of the care was given by student nurses. To supplement nursing staffs in these hospitals 30,000 more nurses are needed, according to the survey. The recommended care for a patient during a twenty-four hour period (under wartime conditions) in a general hospital without a school of nursing is two and one-half hours. However, in 1944 only one hour and ten minutes per day was available to patients.

The shortage of nurses was said to be even more acute in tuberculosis and psychiatric hospitals. There has been a decrease of 31.3 per cent since 1941 in the number of nurses employed in nonfederal psychiatric hospitals. There are now 4,277 nurses caring for 537,821 patients, or only 1 nurse to care for 125 mentally ill patients. There has been a decrease of 36.7 per cent in the number of nurses employed in tuberculosis hospitals since 1941. This means that 4,284 nurses are caring for 58,610 patients, almost 14 to 1 nurse.

The Veterans Administration reports that the ninety-eight veterans' hospitals are for the most part understaffed to the danger point. There are three types of veterans' hospitals: general medical and surgical, neuropsychiatric and tuberculosis. The need for 8,000 more public health nurses is based on a

wartime standard of 1 nurse to 5,000 people for every state. At present there is 1 nurse for each 6,000 population. Vast shifts in population as families moved into war industry centers or followed service men around the country created new needs for public health nurses, the Public Health Service reported. About 3,000 public health nurses have gone into military service. Many of these vacancies have remained unfilled. The 90,000 more men and women—other than nurses or nursing personnel—who are needed include highly skilled technicians, orderlies, laundrymen, electricians, plumbers, janitors and chiefs.

More than 200,000 women in the United States have completed nurses' aide training, but for a variety of reasons many of them are not now devoting any time to hospitals. It is probable, the Red Cross states, that some hospitals already have a full complement of volunteers. However, many hospitals are pleading for them. The Red Cross also said that a minimum of 3,000,000 additional persons should receive training in home nursing. Four types of courses are offered: (1) a standard twenty-four hour course for adults, (2) six two hour lessons in the care of the sick, (3) the course for college students, offered in the fall of this year, (4) the high school course, which is sometimes combined with home economics or science courses.

WARTIME GRADUATE MEDICAL MEETINGS

The sudden termination of active hostilities in both Europe and Japan, with the resultant anticipated redeployment and separation of physicians from service, has compelled the Central Committee to make preparations for the conclusion of the Wartime Graduate Medical Meetings. Unless more urgent demands are forthcoming, its activities will terminate as of Dec. 31, 1945.

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

California

Birmingham General Hospital, Van Nuys: Recent Developments in Surgical and Public Health Antisepsis, Dr. Fred J. Moore, October 10; Communicable Diseases, Major Norman Nixon, October 24; Acute Infectious Mononucleosis, Capt. Charles H. Marple, October 24.

A. S. F. Regional Hospital, Camp Haan: Neuropsychiatry, Lieutenant Commander Nichols, October 2.

Camp Cooke Station Hospital, Lompoc: Recent Developments in Diabetes, Dr. Howard F. West, October 3; Traumatic Surgery of the Urinary Tract, Capt. D. W. Atcheson, October 17.

Hoff General Hospital, Santa Barbara: Recent Developments in Diabetes, Dr. Howard F. West, October 3; Traumatic Surgery of the Urinary Tract, Capt. D. W. Atcheson, October 17.

Torney General Hospital, Palm Springs: Cardiac Pain, Capt. Arthur A. Twiss, October 2; Acute Nephritis, Professor Lyttle, October 16.

U. S. Regional Hospital, Pasadena: Thoracic Surgery, Comdr. W. L. Rogers, October 8.

U. S. Naval Air Training Station, San Diego: Acute Infectious Hepatitis, Col. Irving Wright, October 5; Psychosomatic Medicine, Major Milton Miller, October 19; Headache, Capt. Oscar Sugar, October 19.

A. A. F. Regional and Convalescent Hospital, Santa Ana Army Air Base: The Streptococcus Problem, Lieut. Comdr. George R. Underwood, October 2; Endocrinology, Dr. Hans Lissner, October 18.

U. S. Naval Hospital, San Diego: Peripheral Vascular Problems, Col. Irving Wright, October 4.

U. S. Naval Hospital, Mare Island: Newer Trends in Syphilotherapy, Dr. Norman N. Epstein, October 5; Acute Sinusitis, Dr. Lewis F. Morrison, October 26.

U. S. Naval Hospital, Treasure Island: Skeletal Injuries to the Extremities, Dr. Frederick C. Bost, October 5; Peritoneal Injuries and Infections, Dr. Alson R. Kilgore, October 26.

Station Hospital, Camp Roberts: Peripheral Vascular Disease; Surgical Aspects, Dr. M. Laurence Montgomery, October 13.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Sept. 17, 1945.

General Hawley Named Veterans Surgeon General

In his reorganization of the Veterans Administration along army lines, with thirteen branch offices set up in districts roughly comparable to Army Service Commands, Gen. Omar N. Bradley has named Major Gen. Paul R. Hawley as the agency's acting Surgeon General. Dr. Charles M. Griffith, medical director, becomes an assistant to General Hawley. The Medical Branch has also been raised to independent status.

A. D. Hiller, formerly executive assistant to the administrator, also will assist General Hawley in handling administrative affairs. General Bradley has appointed Col. Eldon L. Bailey, recently released from the Army, to be his executive assistant, with duties to be roughly those of a chief of staff. Decentralization is effected through creation of the thirteen branches, which will supervise the work of fifty-three existing offices and about one hundred hospitals, formerly run from the Washington central office. Control of the agency will also be distributed among fourteen top assistants to General Bradley. During the two decade administration of Brig. Gen. Frank T. Hines, control was held by four deputy administrators, the so-called Four Horsemen. All four have been held in key posts, the shakeup leaving old time appointees in ten of the top jobs. General Bradley declared that all appointees, civilian and military, are in an "acting capacity" and none of the appointments are permanent.

Major General Hawley is named assistant administrator for medicine and surgery. Formerly chief surgeon of the European theater, he has been serving as personal aide on medical affairs to General Bradley and will now serve as "surgeon general." The director of medical and hospital service served in the former setup under a civilian who was the assistant administrator in charge of medical and domiciliary care, construction and supplies. Now an almost autonomous medical branch is created, as requested in bills before both branches of Congress and urged by elder statesman Bernard Baruch.

The thirteen branches will be established as soon as personnel are trained and space is available. They take immediate charge of hospitals, domiciliaries and regional and subregional officers. Later they will handle insurance and dependents' claims now handled by the central office.

Congress Urged to Aid Research on Artificial Limbs

Col. Leonard T. Peterson, Army chief of orthopedic surgery, told the House Labor Committee's subcommittee to aid the physically handicapped, that failure of Congress to support research in better artificial limbs will mean that limbs will be no better twenty-five years hence than they are now. He was one of a number of witnesses heard during three day hearings before Representative Augustine B. Kelley, Democrat of Pennsylvania, subcommittee chairman.

Denial of Deaths from Delayed Radioactivity of Atomic Bomb

Scientists who developed the atomic bomb deny Japanese propaganda claims that delayed radioactivity could have caused deaths. They state that the radioactive gamma rays released by the atomic bomb may kill instantly or cause death within a few days. These gamma rays will penetrate an ordinary wall, but a foot of concrete stops them. The rays travel with the speed of light. Some atomic bomb victims in Hiroshima and Nagasaki were doubtless killed by instantaneous radiation at the time of the explosion. But these instant rays are not to be confused with delayed radioactivity. Major Gen. Leslie R. Groves, director of the atomic bomb project, says that the

atomic bomb will actually kill in some fifteen different ways, including concussion, blast, fire, exploded missiles, falling buildings and lack of medical attention. United States Army scientific observers were flown to Japan after the surrender to check on bomb damage and the Jap propaganda claims.

Medical Legislation

MEDICAL BILLS IN CONGRESS

National Neuropsychiatric Institute

Hearings have been scheduled by a subcommittee of the House Committee on Interstate and Foreign Commerce on H. R. 2550, a bill to provide for, foster and aid in coordinating research relating to neuropsychiatric disorders and to establish the National Neuropsychiatric Institute. Hearings began Tuesday, September 18.

Prosthetic Appliances

Representative Rogers, Massachusetts, proposes by H. R. 4911 to direct the Secretary of War to cause to be conducted, by the appropriate agency or agencies in the War Department, experimentation, studies and research for the purpose of aiding in the rapid development and prompt manufacture of more adequate and efficient prosthetic appliances and parts of such appliances. This bill, too, would direct the Secretary of War to allocate funds to such corporations and business firms as he deems best qualified, to be expended in conducting experimentation, studies and research with respect to prosthetic appliances. Another bill introduced by Representative Rogers, H. R. 4012, is similar to the preceding bill with the exception that it directs the Administrator of Veterans Affairs to cause to be conducted by the Veterans Administration such experimentation and directs that official to allocate funds to corporations and business firms.

Miscellaneous

Representative Kelley, Pennsylvania, has introduced H. R. 3994, a bill to provide for the general welfare by enabling the several states to make more adequate provision for the health and welfare of mothers and children and for services to crippled children. This bill is identical with the Pepper bill, S. 1318, and the Norton bill, H. R. 3922.

H. R. 3972, introduced by Representative Bailey, West Virginia, proposes to encourage the prevention of stream pollution by allowing amounts paid for plants for the treatment of industrial waste as a deduction in computing net income.

Coming Medical Meetings

American Medical Association House of Delegates, Chicago, Dec. 3-6.
Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

Association of American Medical Colleges, Pittsburgh, Oct. 29-31.
Dr. Fred C. Zapffe, 3 S. Wabash Ave., Chicago, Secretary.

Delaware Medical Society of Wilmington, Oct. 8-10. Dr. W. H. Speer, 917 Washington St., Wilmington, Secretary.

Indiana State Medical Association, French Lick, Nov. 6-8. Mr. Thomas A. Hendricks, 23 E. Ohio St., Indianapolis 4, Secretary.

Kentucky State Medical Association, Lexington, Oct. 29-31. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.

New York Medical Society of the State of, House of Delegates, Buffalo, Oct. 8-9. Dr. W. P. Anderson, 292 Madison Ave., New York 17, Secretary.

Omaha Mid-West Clinical Society, Omaha, Nebraska, Oct. 22-26. Dr. R. W. Fouts, 107 S. Seventeenth St., Omaha, Secretary.

Pennsylvania Medical Society of the State of, House of Delegates, Philadelphia, Oct. 23-24. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh 22, Secretary.

Virginia Medical Society of, House of Delegates, Roanoke, Oct. 22-23. Miss Agnes V. Edwards, 1200 Clay St., Richmond 19, Secretary.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

University News.—Dr. Paul M. Aggeler, assistant professor of preventive medicine, University of California Medical School, San Francisco, has been named assistant clinical professor of medicine and preventive medicine.

Funds for Psychiatric Clinic.—Governor Warren recently signed a bill appropriating \$100,000 to purchase a site for a psychiatric clinic in Los Angeles. According to *California and Western Medicine* the clinic will be patterned after the Langley Porter Clinic established by the state in San Francisco a few years ago (*THE JOURNAL*, Feb. 27, 1943, p. 690). The clinic is to be devoted to research, teaching and treatment.

San Francisco Society Appoints Executive Secretary.—Mr. Frank J. Kihm, since 1938 city editor of the *Wall Street Journal*, Pacific Coast edition, has been appointed executive secretary of the San Francisco County Medical Society, a newly created position. Mr. Kihm was released from active duty with the U. S. Marine Corps September 1. He was to take up his new work with the county medical society September 15.

CONNECTICUT

Sanitary Code Amended.—A recent amendment to the Connecticut Sanitary Code, effective July 1, provides that, within twenty-four hours of the receipt of a prisoner who may have been exposed to a communicable disease, the prison or jail physician must be notified, who in turn must make a routine medical examination, including blood tests for syphilis and a smear and culture for gonococcal infection. On expiration of the sentence any person having syphilis or gonorrhea whether in an infectious or a noninfectious stage and in need of further follow-up treatment shall be reported to the state department of health. Another amendment discusses approved laboratories in using a standard serologic test for syphilis and still another states that, when the control or release of a case, contact or carrier of a communicable disease is dependent on laboratory findings, the specimens on which such findings are based shall be examined by the bureau of laboratories of the state department of health or by a laboratory specifically approved for the purpose by the state department of health. The health officer shall by himself or his agent secure and submit release cultures or specimens for examination.

FLORIDA

Wilson Sowder Named State Health Officer.—Dr. Wilson T. Sowder, U. S. Public Health Service, has been appointed health officer of Florida to succeed Dr. Henry Hanson, Jacksonville, who will retire September 25. Dr. Sowder graduated at the University of Virginia Department of Medicine, Charlottesville, in 1932. Dr. Hanson has held the position since July 1942.

GEORGIA

William Friedewald Heads New Department.—On September 1 Dr. William F. Friedewald, member of the staff, International Health Division, Rockefeller Foundation, New York, became professor of bacteriology and chairman of the newly created department at Emory University School of Medicine, Atlanta. Dr. Friedewald, who graduated at St. Louis University School of Medicine in 1935, has been with the Rockefeller Foundation since 1942.

ILLINOIS

New Chief of Health Service.—Dr. Marjorie M. Smarzo, Urbana, has been named head of the women's division of the University of Illinois Health Service, succeeding Dr. Maude Lee Etheredge (*THE JOURNAL*, August 18, p. 1179). Dr. Smarzo first came to the University of Illinois in 1930 as assistant hygiene and medical adviser for women. Previously she had been examining physician for the Bell Telephone Company in New York and New Jersey. In 1932 she left Illinois to become resident physician and professor of hygiene at Winthrop College, Rock Hill, S. C. Dr. Smarzo returned to the University of Illinois in 1937 and remained until 1942, when she left to become an examining physician at the Sangamon

Ordinance plant at Illiopolis, Ill. In 1943 she became college physician at New Jersey College for Women, New Brunswick, N. J., returning this summer to the University of Illinois Health Service. In her new position Dr. Smarzo will have the title of assistant professor in hygiene and medical adviser for women in charge of the women's division of the health service.

CHICAGO

Food Forum.—On September 25 the Food Forum will convene at the Hotel Continental to hear the following speakers: Col. Rohland A. Isker, Chicago Quartermaster Depot, Nutrition and Current Relief Feeding.

Dr. Paul R. Cannon, Relative Nutritive Values of Proteins as Influenced by Their Amino Acid Composition.

Dr. Samuel A. Levinson, Effect of Relief Protein Diet in Nutrition.

Society News.—The Chicago Laryngological and Otological Society will be addressed October 1 at the Hotel Continental by Comdr. Francis L. Lederer (MC) and Lieut. (jg) William G. Hardy, H(S), U. S. Naval Reserve, on "The Treatment and Training of the Hard of Hearing Person: A Program of Physico-Psycho-Social Therapy for Those with an Aural Handicap."

Faculty Changes at Northwestern.—Announcement was recently made of the retirement of Dr. Harry M. Richter, professor of surgery at Northwestern University Medical School, with the rank of professor emeritus. Promotions on the faculty include:

Dr. Smith Freeman, professor of physiology.

Dr. Leon Unger, associate professor of medicine.

Dr. Theophil P. Grauer, associate professor of urology.

Dr. Eugene B. Perry, assistant professor of urology.

R. Frederick Becker, Ph.D., assistant professor of anatomy.

Dr. Gerard N. Krost, assistant professor of pediatrics.

Maury Massler Goes to Italy on Medical Survey.—Maury Massler, D.D.S., assistant professor of histology in the University of Illinois College of Dentistry, became the representative of dental science in September in a medical survey of the medical effects of wartime nutritional shortages in Italy. He will take the place of Isaac Schour, D.D.S., professor and head of the histology department at the university, who is now with the medical group to organize and begin the work and who expects to return to the university October 1. Dr. Massler's leave extends from September 1 to February 1.

IOWA

New Professor of Pathology.—Dr. Emory D. Warner has been named professor and head of the department of pathology at the State University of Iowa College of Medicine, Iowa City, to succeed Dr. Harry P. Smith, who has joined Columbia University College of Physicians and Surgeons (*THE JOURNAL*, May 5, p. 42). Dr. Warner, associate professor of pathology at Iowa, graduated there in 1929.

Medical School Observes Seventy-Fifth Anniversary.—The State University of Iowa College of Medicine, Iowa City, will celebrate its seventy-fifth anniversary with a special program September 27-28. The program will include clinics, symposiums and ward walks as well as a series of demonstrations covering the specialties. Dr. Owen H. Wangenstein, professor of surgery, University of Minnesota Medical School, Minneapolis, will deliver the Paul Reed Rockwood Lecture on "The Ulcer Problem" and Dr. Ralph H. Major, professor of medicine, University of Kansas School of Medicine, Kansas City, the Mayo Lecture on "Hippocrates and the Island of Cos"; also included on the program will be the following, all of Iowa City:

Dr. William D. Paul, Physical Therapy in Arthritis.

Dr. William M. Hale, Influenza.

Drs. Willis M. Fowler and Milford E. Barnes, Malaria.

Dr. Elmer L. McGowan, Blood Bank.

LOUISIANA

Personal.—Dr. Jesse F. Tanner, DeFuniex, has been appointed coroner of Union Parish to complete the unexpired term of the late Dr. J. G. Taylor, Farmerville, who died May 16. —Dr. Charles F. Gelbke, Gretna, was awarded the annual plaque for outstanding civic service on the Westbank at the ninth annual banquet of the Westbank Rotary Club, held in the Gold Room of the Roosevelt Hotel, New Orleans, recently.

Grant for Study on Metabolic Diseases.—Eli Lilly and Company has made a grant of \$5,000 to the Alton Ochsner Medical Foundation for research, New Orleans, for the study of endocrine and metabolic diseases under the supervision of Dr. William Parson, New Orleans. Dr. Albert Segaloff, formerly of Vanderbilt University School of Medicine, Nashville, Tenn., who was to join the foundation staff on August 1, will have direct charge of the endocrine laboratory.

MARYLAND

Charles Davidson Named Acting Professor of Radiology.—Dr. Charles N. Davidson has been appointed temporary head of the department of radiology at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, pending the return of Dr. Walter L. Kilby from military service. Dr. Henry J. Walton, who had been professor since 1918 until a few years ago, when he was made professor emeritus, has been serving since Dr. Kilby entered the service.

MASSACHUSETTS

Graduate Seminar in Neurology and Psychiatry.—The eleventh postgraduate seminar in neurology and psychiatry will begin Monday, October 1, at the Metropolitan State Hospital, Waltham. The program consists of lectures, demonstrations and round table conferences in anatomy, applied physiology, pathology and roentgenology of the nervous system, clinical neurology, psychopathology and psychiatry. The lectures will be held every Monday from October 1 to December 10 and from Jan. 7 to April 22, 1946 in three sessions of two hours each. The printed schedule will be released shortly. The seminar is open to all graduate physicians. Those interested are requested to register October 1 at the Metropolitan State Hospital, 475 Trapelo Road, Waltham.

MICHIGAN

State Medical Meeting.—The 1946 annual session of the Michigan State Medical Society will be held at the Book Cadillac Hotel, Detroit, the week of Sept. 22, 1946.

Rheumatic Fever Control Conference.—The Michigan State Medical Society and the Michigan Crippled Children Commission sponsored a rheumatic fever control conference September 19-20 at the Book-Cadillac Hotel, Detroit. Among the participants were:

- Dr. Herman H. Riecker, Ann Arbor, The Rheumatic Fever Control Program in Michigan.
- Dr. John R. Paul, New Haven, Conn., Natural History of Rheumatic Fever, Epidemiology and Familial Aspects.
- Dr. Stanley Gibson, Chicago, Clinical Manifestations of Rheumatic Fever and the Determination of Rheumatic Activity.
- Dr. John F. Holt, Ann Arbor, Use of the X-Rays in the Diagnosis of Rheumatic Heart Disease.
- Dr. Gordon B. Myers, Detroit, Electrocardiogram in the Diagnosis of Rheumatic Heart Disease.
- Dr. James L. Wilson, Ann Arbor, Differential Diagnosis of Rheumatic Fever in Children.
- Dr. Joseph A. Johnston, Detroit, Chorea and Its Differential Diagnosis in Children.
- Dr. Thomas Duckett Jones, Boston, Prophylaxis and Treatment of Rheumatic Fever.

In addition round table discussions were held, among others, by Drs. Moses Cooperstock and Mark F. Osterlin, Ann Arbor. The program also included clinical demonstrations.

Institute for Occupational Health Research.—Articles of incorporation for a new nonprofit corporation to be known as the Institute for Occupational Health Research will be filed in Lansing next month, it was announced September 2. The institute will be staffed with specialists in the medical and engineering phases of employee health and will maintain research laboratories. Subject to approval by the board of education, the institute will be affiliated with and housed with Wayne University's new School of Occupational Health, whose program is entirely financed by the Medical Science Center. Dr. Raymond Hussey, dean of the school, will serve as director of the institute. The sum of \$750,000 is now being raised by the Medical Science Center to finance the joint program of the school and the institute for the first five years. The affiliated school and institute will be both a service unit for industry and an educational institution. The school will educate, on a postgraduate level, graduate doctors and engineers who wish to specialize in the field of occupational health. In addition, courses will be available to industrial physicians and hygiene engineers. Later the school will arrange special courses for the training of technicians. For graduate doctors and engineers the school will offer a two year course, of which half the time will be spent in plants. On graduation, doctors will receive the degree of doctor of industrial health, and engineers the degree of doctor of science in industrial health. The staff and laboratory of the institute will be available to industry at reasonable cost. In general it will concern itself with the health of all persons engaged in business and industrial occupations. It will accept a limited number of industrial concerns as clients and supervise their employee health programs, though it will at no time engage in the practice of clinical medicine. It will, on request, study the biologic effects, harmful or otherwise, of manufactured products and manufacturing processes on workers and

consumers. It will conduct researches in the field of occupational health and publish and disseminate information in this field. The School of Occupational Health, meanwhile, will utilize the institute's laboratory, experiments and employee health maintenance program as part of its instruction activities, much as a hospital is used for the teaching of medical students. It is anticipated that the school will be ready to accept enrolments by the fall of 1946. The institute will be in operation before that time. For the time being, both school and institute will be situated in one of the large houses recently condemned for the use of Wayne University. Eventually a building will be provided in the Medical Science Center. Dr. Hussey is now canvassing the country for prominent medical and engineering personnel in the field of industrial health. These will comprise the faculty of the school and staff of the institute. In a statement to the press, Dr. Hussey stated that there is no institution of the kind now in existence anywhere in the world. Emphasis will be placed on the humanistic approach to the problem and the concept of occupational health which recognizes the study of health for its own sake rather than regarding health as absence of disease. Dr. Hussey stated that the staff will be prepared to go into a plant, survey it and provide full employee health supervision of both an engineering and a medical nature, making recommendations on ventilation, clothing, protective devices and all other subjects relating to employee health. The actual practice of medicine will be left to the medical profession. The institute will train industrial physicians and engineers who wish to specialize in such employee health matters as illumination, noise, ventilation, temperature and humidity, plant sanitation, hygiene and safety.

MISSOURI

Fall Clinical Conference.—The twenty-third annual fall clinical conference of the Kansas City Southwest Clinical Society will be held at the Little Theater, Municipal Auditorium, Kansas City, October 1-2. The program will consist of symposiums on:

- Cardiology—Dr. Ira H. Lockwood, Kansas City, director; Drs. C. G. Claude F. Dixon, Rochester, Minn.; Leo G. Col. Howard A. Rusk, M. C., participants.
- Diseases—Dr. Joseph E. Welker, Kansas City, Hansen, Galveston, Texas; Capt. Alphonse McMahon (MC) and Dr. Rigler, participants.
- Rehabilitation and Tropical Diseases—Dr. Lewis G. Allen, Kansas City, director; Colonel Rusk, Lieut. Col. Samuel T. Helms, M. C., and Major Wilson C. Merriman, M. C., participants.
- The Chest—Dr. Herbert L. Mantz, Kansas City, director; Dr. Everts A. Graham, St. Louis; Col. John B. Graw, M. C., and Dr. Rigler, participants.
- Endocrinology—Dr. William Merritt Ketcham, Kansas City, director; Dr. Barborka, Dr. Ralph E. Campbell, Madison, Wis., Dr. Hansen and Dr. Frank D. Dickson, Kansas City, director; non L. Hart, M. C., and Dr. Roland M. Klemme, St. Louis, participants.

Other speakers who will participate include Col. Edgar V. Allen M. C., and Col. Grover C. Penberthy, M. C.

MONTANA

Personal.—Dr. Niels A. Kaa, Corvallis, has been appointed health officer of Ravalli County.

Montana Health.—The Public Health League of Montana has brought out a publication entitled *Montana Health*. The first issue, dated September, is devoted to a discussion of the health activities of the state as well as in agencies interested in the progress of health education. The Public Health League of Montana was formed last year (*THE JOURNAL*, Nov. 25, 1944, p. 846).

OKLAHOMA

License Revoked.—The license to practice medicine of Dr. John Henry Lee Staples, Afton, was revoked June 14 for a narcotic violation (*THE JOURNAL*, March 24, p. 727).

Pathologists Hold First Annual Meeting.—The Oklahoma Association of Pathologists, at its first annual meeting recently, selected Drs. Howard C. Hopps, Oklahoma City, president, Leo Lowbeer, Tulsa, vice president and Bela Halpert, Oklahoma City, secretary-treasurer. Meetings of the association have been held monthly since it was formed in December 1944.

OREGON

Dr. Aufranc Named Assistant State Health Officer.—Dr. Will H. Aufranc, a regular corps officer of the U. S. Public Health Service with rank of surgeon, is on loan to the state of Oregon to act as assistant state health officer. Dr. Aufranc also has charge of the county health units program as well as the state venereal disease control program.

Personal.—Dr. Clifford E. Hardwick, Hood River, has been named a member of the Oregon State Board of Health to succeed Dr. Thompson Coberth, The Dalles, who resigned.—Dr. Elizabeth Bishop, Baker, health officer of Union and Baker counties, was recently elected president of the Oregon Public Health Association.—William Fitch Allen, Ph.D., professor of anatomy and head of the department, University of Oregon Medical School, Portland, received the doctor of science degree from the university at its recent commencement in recognition of his contributions to anatomy and physiology and his services as a teacher.

New University Hospital Approved.—Voters of Oregon endorsed the proposed building program submitted by the legislature to aid the higher educational facilities of the state and certain state institutions coming under the jurisdiction of the state board of control, according to *Northwest Medicine*. Erection of a University Hospital on the University of Oregon Medical School campus, Portland, in addition to the existing hospitals in the university group, was among the items approved. The journal states that the house of delegates of the state medical society is on record as approving operation of such a hospital at the indigent level.

Physicians Purchase Coffey Hospital.—A group of fourteen Portland physicians has purchased the Coffey Memorial Hospital, Portland. Incorporated as Physicians and Surgeons Hospital of Portland, the new owner has declared itself a nonprofit organization and announced plans to develop a complete community hospital, according to *Northwest Medicine*. Stockholders of the new group include Drs. Johnson D. Leonard, president; Ira A. Manville and Harry M. Hendershott, vice presidents; Jerome L. Holzman, treasurer, Horace L. Rosenberg, secretary, Aubrey M. Davis, Millard B. Taylor, Waldo G. Homan, Alfred Hutchinson, Linford S. Besson, Rudolf A. Bissett, William B. Hare, Jesse L. Ray and Wilford H. Belknap.

PENNSYLVANIA

Harry Weest Named Secretary of Health.—Lieut. Col. Harry W. Weest Jr., formerly chief surgeon of the 28th division, has been appointed secretary of health of Pennsylvania to succeed Dr. Alexander H. Stewart, Harrisburg, who died July 31. Colonel Weest was commissioned a first lieutenant in the Pennsylvania National Guard in 1922 and was named division surgeon of the 28th division when Governor Edward Martin was major general in command. Colonel Weest graduated from Jefferson Medical College of Philadelphia in 1919 and practiced medicine in Altoona, where he was on the staff of the Altoona and Mercy hospitals.

Philadelphia

Committee for the Study of Pelvic Cancer.—The Philadelphia Obstetrical Society has created a committee for the study of pelvic cancer the primary aim of which is the detailed study of the "delay period" in every case of death from pelvic cancer. The plan has the approval and cooperation of the Philadelphia County Medical Society and the Philadelphia Department of Public Health. The committee will investigate in detail every death from pelvic cancer occurring in Philadelphia. An investigator will make a special study of that period of the patient's history from the onset of symptoms until adequate therapy has been instituted, the so-called "delay period." An attempt will be made in each case to explain the definite reason for any "delay" and to assign the responsibility to the patient, the doctor, the hospital or to all, as the case may be. The facts obtained from this study will be used as a means of educating the physicians of Philadelphia. The committee will meet each month to review the deaths of the previous month in an effort to decide from the facts where the blame for delay should be placed. The data for these cases will be obtained from the physicians in charge of the case, from the hospital charts and, when necessary, with the permission of the attending physician, from the relatives or the family of the patient. The data will be secured by a paid investigator of the committee who will personally call on the physicians, hospitals or others. As the work of this committee progresses and the monthly review of cases is carried on, the physicians in each case will be asked to take part in the discussion. Their presence at the discussion of their cases and the presence of other interested physicians at these open meetings will be a means of informing physicians of the work of the committee and of sensitizing them to the importance of keeping a "high index of suspicion" for pelvic cancer. According to an announcement, the committee is believed to be the first of its kind to be formed in this country. No previous attempt to "check up" on the physician and his handling of

cancer cases has ever been done, it was stated. The committee is patterned after the Philadelphia Maternal Welfare Committee and hopes to accomplish for pelvic cancer what the maternal welfare committee has accomplished in reducing maternal mortality in Philadelphia. The committee, which has been organized to work with and for the physicians of Philadelphia, is financed by grants from the American Cancer Society and from the Philadelphia Obstetrical Society, which grants are barely sufficient to meet the present needs of the committee. Members of the newly formed committee are Drs. John Y. Howson, chairman; George A. Hahn, treasurer; Clayton T. Beecham, Leib J. Golub, Thaddeus L. Montgomery, Myer Solis-Cohen, Elizabeth S. Waugh and Philip F. Williams. In a statement the committee states that, generally speaking, one of the three factors is involved in any case where the "delay period" is prolonged: the physician, the patient, and the physician and the patient combined. The physician has been responsible for a prolonged "delay period" on the following counts: failure to make a diagnosis, wrong advice, wrong treatment, no treatment, failure to examine the patient adequately. The patient has been responsible because of fear of operation, fear of going to a doctor, fear of having cancer, economic reasons, and the like. The two factors are combined when both physician and patient are at fault. The committee believes that programs to educate the public have been worth while because of the increasing response of the public. Credit is ascribed also to various cancer detection clinics that have been established throughout the country. These, however, are believed not to have reached a majority of the people, indicating that the best approach still is through the practicing physician or family doctor.

SOUTH CAROLINA

Changes in Health Officers.—Dr. Edmond J. Bryson, Liberty, who has been serving as health officer for Oconee and Pickens counties, has been assigned health officer for Pickens County only and Dr. Furman T. Simpson, Westminster, will have charge of the Oconee Unit. The change was effective June 1.

Physicians Give 250 Years of Service to State.—At a meeting of the staff of the York County Hospital, Rock Hill, recently it was revealed that five physicians in attendance at the meeting had practiced medicine in South Carolina for a total of 250 years. The physicians and their years of service in the state are Dr. Joseph H. Saye, Sharon, 62 years; William A. Hood, Hickory Grove, 56 years; Charles B. Harrell, Rock Hill, 47 years; James R. DesPortes, Fort Mill, 45 years; James B. Elliott, Fort Mill, 40 years. The *Journal of the South Carolina Medical Association*, in an additional comment, claimed that this is a record unparalleled in any county of similar population, 58,000, in the United States.

WEST VIRGINIA

Changes in Health Officers.—At a special meeting of the Public Health Council in August the following city and county health officers were appointed: Drs. James E. Coleman (reappointed), Fayetteville, of Fayette County; Edgar H. Willard, Berkeley Springs, of Morgan County; Roscoe G. Stotts of Kenova, and James A. McClung of Richwood.

License Revoked.—The license of Dr. Ballard R. Gibson, Omar, has been revoked by the public health council on the grounds that credentials presented from the state of Tennessee for the procurement of licensure in West Virginia by reciprocity were fraudulent and that the certificate of premedical education at Pikeville (Kentucky) College was likewise fraudulent, according to the West Virginia State Medical Association. Dr. Gibson was formerly located at McAndrews, Ky.

ALASKA

Health Education Fellowship and Surveys.—The first fellowship in health education granted in Alaska has been awarded to Mrs. Kathleen Kimble, Alaska Native Service teacher at Point Hope. On completion of the course at the School of Public Health of the University of North Carolina, Chapel Hill, under the auspices of the National Foundation for Infantile Paralysis Mrs. Kimble will return to Alaska to become health education supervisor for the Alaska Native Service.—The division of maternal and child health and crippled children's services of the Alaska Department of Health, in cooperation with the medical profession, is conducting a survey throughout the territory to determine the prevalence of rheumatic fever in Alaska.—The department of health, the

department of education and the Alaska Native Service, in anticipation of establishing a division of rehabilitation in Alaska, is making a survey to ascertain the number of cases of deafness, blindness and speech defects in Alaska.

HAWAII

Personal.—Dr. Samuel D. Allison, for more than three years control officer of the division of venereal diseases in the board of health, Territory of Hawaii, has been given a temporary appointment of director of public health during the absence of Dr. Richard K. C. Lee, Honolulu, who has been given a year's leave for graduate study in New York.

Public Health Association Organized.—The Public Health Society of the Territory of Hawaii was recently organized. Officers include Kaarlo W. Nasi, P. A. sanitary engineer, U. S. Public Health Service, president; Theodore R. Rhea, C.P.H., director, Palama Settlement, vice president; Elmer J. Anderson, M.A., acting director of public health education, board of health, secretary, and Myrtle Payne, R.N., Castle and Cooke, Ltd., treasurer.

GENERAL

Special Society Election.—The following officers of the National Gastroenterological Association were recently reelected for a term of one year: Drs. Anthony Bassler, New York, president; Clarence J. Tidmarsh, Montreal, Canada, Harry M. Eberhard, Philadelphia, and William W. Lermann, Pittsburgh, vice presidents; Roy Upham, New York, secretary general; G. Randolph Manning New York, secretary, and Elihu Katz, New York, treasurer.

Survey of Needs for Day Care of Children.—The Child Welfare League of America has launched a nationwide survey for needs of day care of children, according to the *New York Times*. The work was started in anticipation of the emergency foreseen in the termination by October 31 of FWA of funds for children of working mothers. Howard W. Hopkirk, New York, executive director of the league, called for prompt and accurate reporting from 700 member agencies and affiliates in forty-three states "so that an up-to-date and correct picture of the situation may be presented to the President, who has power to continue such programs beyond November 1 if he finds proof that an emergency exists."

The Scudder Missionaries Return to Posts.—Two physicians of one family left for India on the *Gripsholm* August 28 to return as medical missionaries. They included Dr. Ida S. Scudder, who went to India in 1900 to serve forty-one years after being graduated at the Cornell University Medical College, New York, in 1899, and Dr. Lewis R. Scudder, physician in charge of a hospital at Kuwait, Arabia, Asia. According to the *New York Times* the Scudders are carrying out a family tradition started in 1819 by Dr. Ida S. Scudder's grandfather, also a physician. With Dr. Lewis Scudder were his wife and two children. Dr. Ida S. Scudder returned to the United States in 1941 but is going back to the All-India Christian Medical College as president emeritus to help develop a medical center there. Her niece, Dr. Ida B. S. Scudder, is professor of radiology and medicine at the All-India Christian Medical College, which was founded in 1918 at Vellore, India, and was formerly known as the Missionary Medical College for Women.

Changes in Status of Licensure.—The California State Board of Medical Examiners announces the following actions taken during its meeting in San Francisco, July 9-10:

Dr. John J. L. Doyle, Chico, license restored, July 9, and placed on five years' probation without narcotic privileges and with the proviso that he report to the board annually.
Dr. Milton S. McMurry, license restored, July 9, and placed on five years' probation (no restrictions as to narcotics, as there was no narcotic charge originally involved). Dr. McMurry must abide by all laws and report to the board annually.
Dr. Samuel J. Apfel, Brooklyn, license to practice in California revoked, July 10, because of revocation in another state.
Dr. James A. Hadley, Jamestown, placed on probation for a period of five years, without narcotic privileges and report annually to the board.
Dr. Benjamin F. Johnson, Jackson, Miss., California certificate revoked, July 10, because of revocation by another state.
Dr. Richard E. Orme, San Francisco, on July 10 placed on one year probation for violation of section 2392 of the Business and Professions Code, aiding an unlicensed practitioner. (No narcotic restrictions.)

The State Board of Medical Examiners of Georgia at a meeting, June 20, revoked the license to practice medicine of Drs. Grady L. Carter, Talbotton, and John Henry Moore Jr., Atlanta, and at a meeting, July 18, the license of Lucius H. Stinson, Augusta, was revoked. The Michigan State Board of Registration in Medicine at a meeting June 12, revoked the Michigan license to practice of Dr. David Friedman,

Detroit, for unprofessional and dishonest conduct and of Dr. Carl W. Wagar, Kalamazoo, for unprofessional and dishonest conduct. In New Hampshire the license to practice of Dr. Richard Lewis Barker, Derry, was revoked on July 11 on grounds of personal habits that were such as to unfit him for the practice of medicine, according to the state board of registration in medicine.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended September 8 have been received from the division of public health methods, U. S. Public Health Service, as follows:

	Poliomyelitis			Poliomyelitis	
	Week Ended Sept. 8, 1945	Week Ended Sept. 9, 1944		Week Ended Sept. 8, 1945	Week Ended Sept. 9, 1944
New England			South Carolina....	6	4
Maine.....	10	0	Georgia.....	3	1
New Hampshire....	1	6	Florida.....	0	4
Vermont.....	8	2	E. S. Central		
Massachusetts....	30	42	Kentucky.....	4	33
Rhode Island.....	1	1	Tennessee.....	30	10
Connecticut.....	9	13	Alabama.....	4	5
M. Atlantic			Mississippi.....	1	9
New York.....	114	581	W. S. Central		
New Jersey.....	60	50	Arkansas.....	5	0
Pennsylvania....	62	130	Louisiana.....	7	5
E. N. Central			Oklahoma.....	10	1
Ohio.....	33	92	Texas.....	30	11
Indiana.....	28	23	Mountain		
Illinois.....	131	45	Montana.....	7	6
Michigan.....	11	75	Idaho.....	1	0
Wisconsin.....	19	20	Wyoming.....	2	0
W. N. Central			Colorado.....	23	6
Minnesota.....	17	48	New Mexico....	1	3
Iowa.....	9	25	Arizona.....	1	0
Missouri.....	36	14	Utah.....	23	0
North Dakota....	5	7	Nevada.....	1	0
South Dakota....	1	0	Pacific		
Nebraska.....	7	11	Washington.....	33	7
Kansas.....	13	7	Oregon.....	7	11
S. Atlantic			California.....	30	12
Delaware.....	3	12	Total.....	896	1,498
Maryland.....	5	32	First 36 weeks:		
Dist. of Columbia	4	17	1945 and 1944..	7,022	10,972
Virginia.....	30	67	Median, 1940-1944	4,611	
West Virginia....	9	24			
North Carolina...	11	26			

The seasonal peak for 1945 was probably reached during the week ended August 25, when 931 cases were reported. This is peak on the basis of dates of reports; peak by onset of cases would probably be a week or ten days earlier.

American Ophthalmological Society.—The annual meeting of the American Ophthalmological Society will be held at the Homestead, Hot Springs, Va., November 12-14. Among the speakers will be:

Col. Derrick T. Vail Jr., M. C., An American Ophthalmologist in Europe.
Dr. Donald J. Lyle, Cincinnati, Laurence-Moon-Biedl Syndrome.
Dr. Burton Chance, Philadelphia, The Exposing and Fixing of the Eye in the Early Days of Cataract Extraction.
Dr. Eugene M. Blake, New Haven, Conn., Cultivation of Human Tumor Tissue in the Anterior Chamber of the Guinea Pig Eye.
Dr. Wendell L. Hughes, Hempstead, N. Y., Uses of Air in Ophthalmology.
Dr. M. Hayward Post, St. Louis, Dust Borne Infection in Ophthalmic Surgery.
Dr. Alfred Cowan, Philadelphia, Concerning Ocular Imagery.
Dr. Daniel B. Kirby, New York, Paralysis of Ocular Elevation With and Without Blepharoptosis.
Dr. Arthur J. Bedell, Albany, N. Y., Retinal Vessel Proliferation in Diabetes.
Dis. Algernon B. Reese and Frank Payne, New York, So-Called Persistent Tunica Vascularis Lenticis or Retrofetal Fibroplasia of Terry.
Dr. Albert D. Ruedemann, Cleveland, Full Plastic Eye Implant.
Dr. Philip M. Lewis, Memphis, Tenn., Penicillin in Gonococcal Conjunctivitis. Its Use in (About) 25 Cases Compared with the Sulfonamides in 173 Cases.
Dr. William H. Crisp, Denver, A Device for Group Demonstration of Astigmatism Tests.
Dr. Glen G. Gilson, Philadelphia, Marginal Myotomy: An Analysis of Twenty-Two Operations.
Drs. Everett L. Goar and Charles R. Potts, Houston, Texas, The Relationship of Rubella in the Mother to Congenital Cataracts in the Child.
Dr. Trygve Gundersen, Brookline, Mass., Vossius Ring in Ten Battle Casualties.
Drs. Conrad Berens and Hunter H. Romaine, New York, Choice of Sutures in Surgery of the Ocular Muscles.
Dr. Bernard Samuels, New York, Cataract Complicating Intraocular Tumors.
Dr. Maynard C. Wheeler, New York, Exophthalmos Caused by Eosinophilic Granuloma of Bone.
Dr. F. L. Philip Koch, New York, Intraocular Manifestations of Disseminated Lupus Erythematosus.
Dr. Francis Heed Adler, Philadelphia, Physiologic Factors in the Diagnosis of Superior Oblique and Superior Rectus Palsy.
Dr. Ramon Castroviejo, New York, Indications and Contraindications for Keratoplasty and Keratectomy.
Dr. Leslie C. Drews, St. Louis, An Accurate Method for Centering a Front Stop During Cycloplegic Refraction.
Dr. Walter S. Atkinson, Watertown, N. Y., Preliminary Report on Corneal Section with Long Bevel with Conjunctival Flap for Cataract Extraction.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 25, 1945

The Sterilization, Care and Use of Syringes

Mild inflammations and infections not uncommonly follow the inoculation and injections which play so important a part in modern treatment. More severe and even fatal results sometimes occur and usually can be traced to some technical fault. These include cellulitis, lymphadenitis, abscesses, tuberculosis, tetanus, gas gangrene, infective hepatitis, malaria and meningitis (due to contaminated lumbar puncture needles). The Medical Research Council therefore appointed a committee of leading pathologists under the chairmanship of Prof. G. S. Wilson to report on the sterilization use and care of syringes. The committee presented a memorandum based on the experience of many workers and on bacteriologic tests, leading to recommendations which have been proved to be safe and practicable.

It states that complete bacteriologic sterility can be achieved only by use of the autoclave or hot air oven. Boiling in water will destroy all pathogenic bacteria except those that produce resistant spores. Chemical disinfectants if they kill spores at all, do so slowly and cannot always be relied on to destroy even nonsporing bacteria in syringes. A fresh sterile syringe and needle must be used for each injection or aspiration. In clinics where many injections of the same fluid are given the same syringe may be used for several subcutaneous or intramuscular—but not intravenous—injections, provided a fresh needle is used for each patient. A syringe that has been used for aspiration, e. g. of blood from a vein or of pus from an abscess or for intravenous injection, which always entails aspiration of blood must be cleaned and sterilized before it is used again. It is essential to keep syringes for injection separate from those used for aspiration. Syringes and needles require thorough cleaning after use, before resterilization. Sterilization methods may be unreliable if the syringe or needle contains dirt or coagulable protein. Contamination of syringes and needles may occur during assembly after sterilization as the result of contact with fingers, dust or droplets of saliva from either the doctor or the subject, or of contact of the needle with a nonsterile surface. Needles should be handled only with sterile forceps. Syringes with dry washed hands, care being taken to touch only the outside of the barrel and the handle of the piston. The handler should not talk, cough or sneeze over a sterile syringe. Persons with known or suspected upper respiratory infections must wear masks while carrying out injections. The practice of 'dishing up' a sterile syringe and needle in an open bowl, especially one which contains any liquid is condemned. Sterile syringes and needles must be placed in sterile covered containers. Use of a pocket handkerchief must at once be followed by thorough hand washing.

A National Maternity Service

Representatives of the British Medical Association have met representatives of the Royal College of Obstetricians and Gynecologists on the question of a national maternity service and particularly on the role of the general practitioner. A provisional agreement has been reached on the following points: 1. After qualification a practitioner needs adequate and regular experience in obstetrics. 2. Midwifery standards should be raised by (a) inclusion of a resident midwifery post in the pre-registration hospital posts proposed in the Goodenough report on medical education; (b) creating an increased number of resident obstetric posts available to recently registered practitioners; (c) organization of the proposed comprehensive medical service posts to secure for each pregnant woman a general practitioner,

a midwife and, where necessary, an obstetric specialist, (d) recognition for the purposes of the future service of those general practitioners who desire to undertake obstetrics provided they undertake sufficient to enable them to remain efficient.

The Title of "Nurse" to Be Restricted by Law

After October 15 the title of nurse can no longer be assumed by any one who wishes to do so. The minister of health has made it an offense to use the title unless the person doing so is a state registered or enrolled assistant nurse. Agencies supplying nurses must be licensed by the local authorities and must supply only those who are state registered, enrolled assistant nurses, midwives or members of other classes to be prescribed. There is to be an exception for children's nurses who may use the term unless circumstances suggest that they are something other than children's nurses. Other permitted uses are 'trained nurse' by those on the general part of the nurses list, 'maternity nurse' by midwives and 'student nurse' and 'pupil assistant nurse' by those training for state registration and for the Assistant Nurses Roll. The object of these orders is to protect the public against the use of the term 'nurse' by persons having no nursing qualification and against the risk of being supplied without their knowledge with the services of unqualified persons. Regulations also prescribe the form in which licenses for agencies are to be made and the form in which agencies must notify the nurse's qualification to the person employing her.

PARIS

(From Our Regular Correspondent)

July 28, 1945

Disturbances of Pulmonary Ventilation

At the Robert Debre Clinic for Diseases of Children, Debre and his collaborators stress the frequency and variety of conditions capable of provoking disturbances of the pulmonary circulation and the polymorphism of these disorders. A foreign body, for example, can hinder the entry of air in a limited pulmonary area and thus create atelectasis; it can also cause a localized emphysema by a valve action, as shown by Chevalier Jackson. The mechanical obstruction may be accompanied by more or less severe reflex phenomena. An attack of asthma, which is also a reflex disturbance, can by itself cause grave modifications in the respiratory mechanism, which will further complicate the consequences of intrabronchial glandular hypersecretion. Many other causes injure in the same way either mechanically or by reflex action the pulmonary ventilation.

The difference between pulmonary collapse and atelectasis is that the collapse produces only incomplete pulmonary compression in which the pulmonary permeability is still preserved. There remains some functional action of the lung. In atelectasis the pulmonary collapse is complete and the compressed tissues are functionally eliminated, they are shriveled, somewhat hyperemic and appear on the screen as an almost complete opacity.

These phenomena are evanescent and changeable. They require repeated roentgenologic examination. They present special pathologic aspects. Debre and his collaborators designate them as 'pneumonoses' in contradistinction to the infectious pneumopathies or 'pneumonitis'. In older children the pneumonoses are generally associated with tuberculosis of the mediastinal lymph nodes, with a pneumonia with the infiltration of a foreign body or with a bronchial tumor. In infants the appearance is often sudden and spontaneous and the diagnosis is often made only by roentgenocopy. The evolution can be rapid, the young child may succumb with symptoms of paroxysmal dyspnea, cyanosis and collapse. At other times the disorder terminates without having noticeably disturbed the health of the child. The etiology of these accidents is often uncertain. Their course as well as their clinical and roentgenologic sign,

presents disconcerting variations. Asthma and whooping cough may be considered as belonging to the same nosographic family; with their peculiar roentgenographic picture they closely resemble emphysema.

The pneumonoses and the pneumonotic syndromes must be differentiated from pneumonitis just as the nephroses must be differentiated from the nephritides. "It is necessary to avoid the widespread tendency to attribute to an infectious process disturbances which in reality are associated with mechanical phenomena."

In the course of lectures given on this subject at the Clinic of Children's Diseases, the associates of Professor Debré have presented chapters on this new aspect of pulmonary disease. The tracheobronchial adenopathy, which was once considered important and was later disregarded, was assigned once more its role in the disturbances of the pulmonary circulation. These disturbances depend on bronchial compression by caseous adenitis; they lead sometimes to atelectasis and more rarely to localized emphysema. They are not characteristic and are not accompanied by pathognomonic physical signs. The diagnosis is made principally on the basis of the evolution of roentgenographic or tomographic records. Bronchoscopy also is helpful.

These ideas concerning the frequent existence of unrecognized atelectases or emphysemas in children have considerable importance. Besides their theoretical interest and their value for the knowledge of the normal and pathologic physiology of the pulmonary function they avoid the confounding with tuberculous cavities of transparent bubbles seen on the screen; they guard against erroneous induction of pneumothorax in parenchymatous lesions, when the presence of Koch bacilli cannot be demonstrated; they also influence the prognosis in pulmonary disorders of infants and young children, in whom the roentgenograms show cavitations.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Aug. 31, 1945.

Epidemic of Influenza

During the second half of July the number of cases of influenza began to mount sharply in Rio de Janeiro. Since July is midwinter in the Southern Hemisphere, it is the normal time for the high point in the curve of prevalence of influenza. As the reporting of cases of transmissible diseases is not well developed here, particularly in the case of common colds and influenza, the only foundation for the study of the incidence of the disease is the mortality. The annual death rate from influenza, computed only on the basis of the death certificates clearly stating that influenza was the cause of the death, varies normally, in Rio de Janeiro, between 35 and 55 per hundred thousand of population, reaching peaks of 65, 70 and even 80 per hundred thousand at intervals of two to four years. The health department made efforts to get more reports of cases, but a better picture of the outbreak has been obtained through the study of the absenteeism in schools, offices and factories. A sample of about 40,000 industrial and clerical workers of all the districts of the city has shown that the rate of absenteeism in the offices and factories included in the sample rose from the normal of about 3 to 4 per cent to 7.97, 8.64, 7.09 and 8.32 respectively in the first four days of August (average percentage of 8.01 for the four days which corresponded to the peak of the curve of absenteeism), then slowly began to decline. At the end of August the percentage of absences was still at the relatively abnormal level of more than 5. A similar, but larger, sample (about 80,000 individuals) formed with children of the primary and high schools has shown the same condition, the only difference being that the highest percentage of absences was registered about the 7th or 8th of August. The death rate from influenza averaged 51 per hundred thousand during

the months of June and July; it began to rise in the last week of July (99 per hundred thousand) and then continued, rapidly reaching 165 and 187 per hundred thousand, respectively, in the first and second weeks of the month, which corresponded to the peak of mortality.

Hospital News

A small but modern hospital has been opened at Barra do Garças, state of Goyaz. The event is particularly noteworthy because the hospital is located in a backward section of the country, where the federal government is spending important sums of money, through the organization known as the Central Brazil Foundation, in a program to improve the general condition of the people.

The city of Rio de Janeiro has recently acquired a plot of land to increase the area of the Fernando Magalhães Maternity Hospital, which bears the name of the late professor of obstetrics of the university of this city, who was one of the leading practitioners of the specialty. This will permit the enlargement of the maternity, which serves a densely populated section of the suburbs of the city. The hospital has at present 50 beds.

The city of São Paulo has acquired a plot of land of 3,288 square meters (3,611 square yards) and transferred it to the São Paulo Association to Combat Cancer, which immediately will begin the construction of a cancer hospital.

The Division of Hospital Organization of the National Department of Health has published a booklet under the title History and Evolution of Hospitals, which is the first of a series to be distributed free, as a contribution to improve the hospital situation in Brazil. The booklet has been written by Dr. Ernesto de Souza Campos, professor at the São Paulo University, who is considered in Brazil an authority on the subject of hospitals. Dr. Campos stayed for several years in the United States and has also visited several hospitals in Great Britain, France and Germany.

A modern and well equipped tuberculosis hospital with 350 beds will be dedicated on August 4 in the borough of Fonseca of the city of Niterói (population 150,000), capital of the state of Rio de Janeiro, close to the Federal District (city of Rio de Janeiro). The institution will be known as the Azevedo Lima Hospital, to honor a great phthisiologist native of the state of Rio de Janeiro. There are at present in Niterói an average of 320 annual deaths from tuberculosis per hundred thousand of population.

Death of Paulo Cesar de Andrade

Dr. Paulo Cesar de Andrade, one of the most famous surgeons of Brazil and the leader of surgery in Rio de Janeiro, died a few days ago at the age of 51, the victim of a car accident. Dr. Andrade was also the medical superintendent of the Misericórdia Hospital and director of a center of post-graduate teaching at the hospital, the foundation of which was reported in THE JOURNAL, January 27, page 240.

Marriages

DAVID WENTWORTH BARTON, Troy, N. Y., to Miss Liliás Howland Swift of Princeton, N. J., July 14.

HENRY A. RUSCH JR., Centre Island, N. Y., to Miss Frances May Williams of Westfield, N. J., July 27.

MATTHEW A. STROUP, Cherryville, N. C., to DR. FRANCES P. SHAW of Oxford, Miss., June 11.

JOHN TRENTON TUCKER JR., Fort Worth, Texas, to Miss Dorothy Dee Hill of Dallas, June 2.

MARVIN DALE SMITH, Clinton, Miss., to Miss Mary Eleanor Gower of Grifton, N. C., July 8.

NINO A. BOLOGNA, Shaw, Miss., to Miss Betty Rowlett of Sweetwater, Texas, July 25.

JACK LEE FOSTER, St. Louis, to Miss Charlotte Smith of Cairo, Ill., June 30.

Deaths

Thomas Darlington, New York; College of Physicians and Surgeons, New York, 1880; born in Brooklyn Sept. 24, 1858; member of the American Medical Association, American Clinical and Climatological Association, New York Academy of Medicine, Society of Medical Jurisprudence, Harvey Society and the Physicians Mutual Aid Association; retired member of the Medical Society of the State of New York; fellow of the American Association for the Advancement of Science and the New York Academy of Science; served as vice president of the Greater New York Medical Association, National Institute of Social Science and the American Association for Promoting Hygiene and Public Baths; for three years surgeon to the Copper Queen Consolidated Mining Company and the Arizona and Southwestern Railroad Company with headquarters in Bisbee, Ariz.; served on the school board of the Bronx, on the visiting staff of St. John's Hospital in Yonkers, New York Foundling, French Seton and Fordham hospitals; medical editor of the *New York Mail and Express* from 1891 to 1893; health commissioner and president of the board of the city of New York from 1904 to 1910; in 1930 made commissioner emeritus; member of the New York State Workmen's Compensation Commission, 1914-1915; trustee and first vice president of the Metropolitan Savings Bank; director of the Morris Plan Bank; one of the fourteen executive members of the Congress of Physicians and Surgeons from 1907 to 1939; major, medical corps, U. S. Army, during World War I; served as professor of anatomy, principles of surgery, pathology and hygiene at the New York College of Dentistry, of which he had been a trustee, director and treasurer; formerly lecturer on industrial hygiene at the Stevens Institute of Technology and Fordham University, and sanitary engineer for the city department of health; for two years chairman of the Democratic County Committee; in 1924 received the honorary degree of doctor of literature from Juniata (Pa.) College; died at his summer camp, Burnt Hope, about 16 miles from Port Jervis, August 23, aged 86.

Sylvester Jacob Goodman @ Columbus, Ohio; Jefferson Medical College, Philadelphia, 1900; born in Uhrichsville, Ohio, Oct. 28, 1876; also a pharmacist; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; in 1928 served as president of the Columbus Academy of Medicine; formerly councilor of the Tenth District of the Ohio State Medical Association, serving it as secretary from 1924 to 1934; president of the Columbus Obstetric Society; one of the founders of the Columbus Medical Bureau and a member of its original board of trustees; honorary fellow of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; fellow of the American College of Surgeons; formerly on the faculty of the Starling Medical College; served overseas during World War I; on the staffs of the White Cross Hospital, Institution for the Feeble-minded and St. Ann's Maternity Hospital; member of the surgical staff and director, obstetric department, Grant Hospital, where he died July 5, aged 68, of coronary thrombosis.

Alexander Hamilton Stewart @ Harrisburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1907; born in Plumville, Pa., July 22, 1880; in 1939 appointed deputy secretary of health and in 1941 acting secretary and in 1942 secretary of the Pennsylvania Department of Health; chairman of the advisory health board of the state of Pennsylvania; member of the House of Delegates of the American Medical Association in 1942, 1943 and 1944; served for ten years as secretary of the Indiana County Medical Society, of which he had been president for two terms of five years each and as trustee and councilor representing the Ninth District of the Medical Society of the State of Pennsylvania; at one time coroner and medical director of Indiana County; fellow of the American College of Physicians; from 1937 to 1940 chairman of the Indiana County Republican Committee; served as physician for the Pennsylvania Railroad and the Baltimore and Ohio Railroad; died July 31, aged 65, of acute myocardial infarction.

David Carl Farnsworth, San Fernando, Calif.; University of Southern California College of Medicine, Los Angeles, 1906; born June 5, 1882; served in France during World War I; entered the U. S. Public Health Service Reserve in 1920 as a surgeon; served as general inspector the following year with headquarters in Denver and San Antonio and clinical director of the Veterans Administration Facility in Houston; later assistant medical officer in charge of the Veterans Administration Facility in Legion, Texas, and chief of the tuberculosis division,

Central Office, Washington, D. C.; at the time of his death manager of the Veterans Administration Facility in San Fernando; died July 21, aged 63, of coronary thrombosis.

William J. Seymour @ Detroit; Detroit College of Medicine, 1903; born in Detroit Sept. 30, 1878; served on the faculty of his alma mater; fellow of the American College of Surgeons; for twelve years a member of the welfare commission; for many years on the staffs of the Receiving, Providence and St. Mary's hospitals; many years ago organized the medical and surgical services at the Eloise Hospital in Eloise, Mich.; the William J. Seymour Hospital in Eloise was named for him; in charge of Michigan's first public cancer clinic in Detroit in 1932; received the honorary degree of doctor of laws from the University of Detroit in 1933; died August 4, aged 66, of coronary thrombosis.

Jay Weir Grissinger @ Colonel, U. S. Army, retired, Harrisburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; Army Medical School in 1903 and the Army War College in 1920; born Aug. 22, 1875; entered the army as an assistant surgeon in 1902; promoted through the various grades to that of colonel on June 24, 1928; surgeon for the second corps area; held the Distinguished Service Medal; retired August 31, 1939; served during World War I; fellow of the American College of Surgeons; died in the Walter Reed General Hospital, Washington, D. C., August 8, aged 69, of hypertensive cardiovascular disease and cerebral infarction.

John Alexander Steward @ Chattanooga, Tenn.; University of Pennsylvania School of Medicine, Philadelphia, 1926; born in Chattanooga, Tenn., Aug. 6, 1897; fellow of the American College of Surgeons; interned at the Robert Packer Hospital in Sayre, Pa.; fellow in surgery at the Mayo Foundation in Rochester, Minn., from 1927 to 1932; served as chief of staff of the Pine Breeze Sanatorium and the Erlanger Hospital; served overseas during World War I; a major in the medical corps, Army of the United States, from September 1942 to December 1944, when he retired because of ill health; died in St. Mary's Hospital, Tucson, Ariz., July 7, aged 47, of cardiac failure.

Walter Black Rogers @ Cleveland; Johns Hopkins University School of Medicine, Baltimore, 1910; born in Waynesburg, Pa., in 1883; assistant clinical professor of surgery at the Western Reserve University School of Medicine; served in France with the Lakeside Unit during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; member of the Cleveland Medical Library Association; for many years on the staff of the Lakeside Hospital; died in the Leonard C. Hanna House-University Hospitals, July 12, aged 61, of embolism in pulmonary cavity following an operation.

Lawrence C. Ingram, Orlando, Fla.; Keokuk Medical College, College of Physicians and Surgeons, 1903; born in Perry Ill., in 1872; member of the American Medical Association and in 1932 of the House of Delegates; member of the Southeastern Surgical Congress and the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; past president of the Wabasha County Medical Society; on the staff of the Orange General Hospital; died in a hospital at Lake City, Minn., July 2, aged 72, of Hodgkin's disease.

Mary Caroline Abney-Squillace, Richland, Wash.; Washington University School of Medicine, St. Louis, 1935; interned at Hospital of the Woman's Medical College of Pennsylvania in Philadelphia and the Bellevue Hospital in New York; served a residency at the Brandywine Sanatorium in Marshallton, Del.; at one time joined the staff of Barnes Hospital in St. Louis as administrative assistant to the superintendent; died May 20, aged 33.

Herman R. Biersdorf, Portland, Ore.; University of Oregon Medical School, Portland, 1896; member of the American Medical Association; life member of the Oregon State Medical Society; died June 1, aged 72, of coronary occlusion.

Herman A. H. Bouman @ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; at one time on the faculty of his alma mater; fellow of the American College of Surgeons; chairman of the board of directors of St. Andrew's Hospital and an honorary member of the staff of Northwestern Hospital; died June 18, aged 75, of coronary occlusion.

Isidor Eckert, New York; Baltimore Medical College, 1908; died April 6, aged 58.

Samuel Jesse Goldfarb ® New York; Columbia University College of Physicians and Surgeons, New York, 1905; for many years on the staff of the Mount Sinai Hospital; died June 27, aged 64.

Charlotte E. Goodman, Mount Pleasant, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1893; for many years associated with the State Hospital in Harrisburg; in 1943 awarded a citation by her alma mater for being a fifty year graduate; died June 12, aged 84, of exhaustion due to arteriosclerosis and valvular heart disease.

Edward Andrew Grice, Epps, La.; Memphis (Tenn.) Hospital Medical College, 1908; member of the parish school board and health unit; died June 20, aged 61.

Joseph Lowery Johnson, Columbus, Ohio; Howard University College of Medicine, Washington, D. C., 1902; formerly minister to Liberia, representing that country at the Versailles Peace Conference; past president of the board of trustees of Wilberforce University; at one time special investigator for the United States Pension Bureau; died July 18, aged 72.

Patrick Eugene Keffe, Sioux City, Iowa; Jefferson Medical College of Philadelphia, 1910; member of the American Medical Association; died in Ann Arbor, Mich., June 8, aged 59.

Irene Amanda Tognazzini Kenny, Jersey City, N. J.; Stanford University School of Medicine, San Francisco, 1916; in charge of clinics and director of the outpatient department of the Jersey City Medical Center, where she died April 25, aged 58, of coronary thrombosis following a cholecystectomy.

Louis Albert Kirshner, Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; member of the American Medical Association; associated with Mount Sinai Hospital; died June 17, aged 60.

Thomas Leonard Lamkin, Clinton, Ky.; Barnes Medical College, St. Louis, 1899; member of the American Medical Association; also a lawyer; for eight years county attorney; died May 26, aged 72.

James Everard Massey ® Rock Hill, S. C.; Medical College of the State of South Carolina, Charleston, 1899; formerly state senator; honorary member of the South Carolina Medical Association; served as a member of the city board of health and of the teaching staff of the York County Hospital, where he died July 14, aged 70, of heart disease.

William Lester Mathews, Winder, Ga.; Atlanta College of Physicians and Surgeons, 1913; member of the American Medical Association; served overseas during World War I; served as physician in charge of the Barrow County Health Department; a member of the county board of education; the Mathews School was named for him; an examiner for the Selective Service Board; surgeon for the Seaboard Railway; served as president of the Alumni Association of Emory University School of Medicine; died May 4, aged 58.

William Fredrich Mayer-Hermann, New York; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1914; member of the American Medical Association; died in the Sydenham Hospital June 13, aged 54.

Olin Kingsley McGarrah, Altoona, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1895; died June 6, aged 74.

Paul Scott Miller, Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; chief of staff of D. A. Blodgett Home for Children for many years; died in the Blodgett Memorial Hospital June 13, aged 64.

Samuel Nempzoff, Philadelphia; Temple University School of Medicine, Philadelphia, 1935; on the staff of the Northern Liberties Hospital; died June 30, aged 34.

Ralph Henry Newcomb, Upper Lake, Calif.; University of Southern California College of Medicine, Los Angeles, 1908; died in June, aged 61.

Clarence S. Ordway ® Toledo, Ohio; Baltimore Medical College, 1902; founder and managing director of the East Side Hospital; died April 27, aged 71.

John David Rudisill ® Lenoir, N. C.; University of Maryland School of Medicine, Baltimore, 1922; fellow of the American College of Surgeons; served during World War I; examining physician for the county draft board during World War II; recently appointed as a member of the North Carolina Board of Conservation and Development; physician in charge of the Caldwell Hospital; surgeon, Watauga Hospital, Boone, and the Blowing Rock Hospital, Blowing Rock; surgeon to the Southern Railway; died in Edgemont July 28, aged 51.

Samuel D. G. Scruggs, Memphis, Tenn.; Kentucky School of Medicine, Louisville, 1886; died June 27, aged 95.

John Albro Sipher, Norwalk, Ohio; Western Reserve University Medical Department, Cleveland, 1903; member of the American Medical Association; past president of the Huron County Medical Society; served during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; for many years served on the school board; died June 4, aged 71.

Charles Burr Sitgreaves, Pemberton, N. J.; Baltimore Medical College, 1902; died May 24, aged 73, of lymphatic leukemia and diabetes mellitus.

George Edward Owen Leo Smith, Hoosick Falls, N. Y.; Albany Medical College, 1918; member of the American Medical Association; village health officer and school physician; served during World War I; died June 18, aged 50, of coronary occlusion.

Asa Bertrand Starbuck, Dallas, Ore.; University of Oregon Medical School, Portland, 1906; chairman of the Polk County chapter of the American Red Cross; member of the school board and city council; county health officer; on the staff of the Dallas Hospital; died June 8, aged 69, of coronary heart disease.

Albert Mason Stevens, Kaneohe, Hawaii; Columbia University College of Physicians and Surgeons, New York, 1915; served during World War I; died August 6, aged 61.

Eusebius J. Summers, Belva, W. Va.; College of Physicians and Surgeons, Baltimore, 1908; formerly a lawyer; died May 21, aged 72.

Clarence Irouth Thomas ® Guthrie Center, Iowa; State University of Iowa College of Medicine, Iowa City, 1905; died May 28, aged 63, of coronary thrombosis.

Alonzo Clinton Ward, Osceola, Mo.; Kentucky School of Medicine, Louisville, 1884; died May 28, aged 89, of cerebral hemorrhage.



HARRY M. LEVIN, Surgeon,
U. S. P. H. S. (R) 1903-1945

PUBLIC HEALTH SERVICE

Harry M. Levin, Surgeon, U. S. Public Health Service Reserve, Malden, Mass.; born in Baltimore, Sept. 7, 1903; College of Physicians and Surgeons, Boston, 1933; interned, Christ Hospital, Jersey City, N. J., and Prospect Heights Hospital in Brooklyn; served as medical consultant and sanitary supervisor to firms in Malden; member of the American Medical Association; commissioned in the Public Health Service Reserve in

February 1943; first assigned to stations on the West Coast and since September 1944 had been on sea duty in the South Pacific with the U. S. Coast Guard; shortly before his death was promoted to the rank of surgeon; medical officer on the U. S. S. *Serpis*, which was destroyed by enemy action in January at Guadalcanal; aged 41; reported missing January 29; declared killed in action by the Navy Department.

Miscellany

ADDRESS BY SAMUEL GOMPERS, PRESIDENT AMERICAN FEDERATION OF LABOR¹

Delivered in Washington, D. C., Dec. 5, 1916

One great, harmonious chord has been sounded since the opening of this meeting, and under such circumstances it is not a pleasant duty to sound a discord. Yet such a part I have frequently felt myself called upon to play.

For more than half a century out of my sixty-six years of life I have been concerned in the effort to try to bring light and a greater degree of happiness into the lives and the work of my fellow men, and particularly of my fellow workers. I doubt if there be any one whose life is more attuned to the misery and the suffering of any one of my fellows than mine. With me it is the thought not only of helping to assuage immediate want or suffering but of maintaining the opportunities of men to struggle for right and for justice.

There has never yet come down from any government any substantial improvement in the conditions of the masses of the people, unless it found its own initiative in the mind, the heart and the courage of the people. Take from the people of our country the source of initiative and the opportunity to aspire and to struggle in order that that aspiration may become a reality, and, though you couch your action in any sympathetic terms, it will fail of its purpose and be the undoing of the vital forces that go to make up a virile people. Look over all the world where you will and see those governments where the features of compulsory benevolence have been established, and you will find the initiative taken from the hearts of the people.

There are certain species of compulsory social insurance that by their mere statement carry with them the conviction of their self-evident necessity and justice, into which the element of depriving the people of rights cannot enter—such as workmen's compensation and old age pensions. But when compulsory health insurance and compulsory unemployment insurance are proposed, the question arises at once, What are the conditions and regulations to be imposed by the government to regulate the conduct of the supposed beneficiaries?

By reason of the many duties devolving on me I have not had the opportunity to prepare a paper. I have made some memoranda, and I ask your indulgence to present thoughts which press upon me in the best way I can within the limit of time set for these proceedings.

The highest standards in the lives of the workers have been secured by the development, the organization and the exercise of the economic power of the workers. Although this economic power is superficially indirect, it is in reality the most potent and the most direct social insurance of the workers. It is the only agency that can readily guarantee to the workers protection against the results of the eventualities of life and give them a feeling of security.

There is more voluntary social insurance among the workers in the United States than in any other country in the world.

The organization of labor, which has secured reductions in the hours of their daily toil, which has secured higher wages and better standards of life, which has secured safety and sanitation, has done more to eliminate poverty and misery and unemployment and sickness than all other agencies of government and private individuals combined.

The trade-union of which I am a member and to which I owe my primary membership, in less than twenty-five years, as shown by absolutely accurate data, has reduced the sickness of

its membership to a marked degree. It has lengthened the lives of the members of that craft on an average more than sixteen years. What is true of that organization is true to a greater or less degree of every other trade-union in America.

The organizations of labor provide social insurance in cases of sickness or unemployment far too little to be true to their mission, far too narrow to suit my impatient spirit; but the willingness to fly from the ills we bear to those of which we know not is quite too general among men who are well meaning, yet who are theorists, or who desire to indulge themselves in a fad that involves grave consequences not only to the workers themselves but to the fundamental principles of freedom.

Social insurance cannot even undertake to remove or prevent poverty. It is not fundamental and does not get at the causes of social injustice. The only agency that does get at the cause of poverty is the organized labor movement.

Social insurance, in its various phases of sickness insurance, unemployment insurance and death benefits, provides the means for tiding over an emergency.

The labor movement aims at constructive results—higher wages, which mean better living for the worker and those dependent upon him, better homes, better clothes, better food; and shorter hours of work, which means relief from overfatigue and time for recuperation, workers with better physical development and with sustained producing power. Better physical development is in itself an insurance against illness and a certain degree of unemployment. The short hour workmen, with higher wages, become better citizens, better able to take care of themselves.

Then again, the first step in establishing compulsory social insurance is to divide people into groups, those eligible for benefits and those considered capable of caring for themselves. The division is based on earning capacity. This governmental regulation must tend to fix the citizens of the country into classes, and a long-established insurance system would tend to make those classes rigid.

Governmental power grows upon that on which it feeds. Give an agency power, and it at once tries to reach out after more. Its effectiveness depends on increasing power. This has been demonstrated by the experience of the railroad workers in the recent enactment of the Adamson law. When Congress exercised the right to establish eight hours for railroad men, it also considered a complete program for regulating railroad workers, which culminated in the effort to take from them the right to quit work, and conscription providing for compulsory service.

Recently a gentleman of the highest standing stated to me that during the time he was in Germany, and in a position to know, German workmen came to him seeking aid to get out of that country to the United States. They told him that by reason of the taxes which they were compelled to pay into compulsory social insurance schemes, they had no money left except for absolute necessities of life and were unable to secure sufficient funds to come to the United States even in the steerage. He said to me further that in Germany, where compulsory social insurance has been more extensively worked out than in any other country, the workmen of that country, by reason of their property interests in compulsory social insurance, have been compelled to remain in Germany and work under circumstances, wages, hours and conditions of employment which forced them to endure conditions below standards of a living wage.

Is it not discernible that the payments required of workmen for this compulsory social insurance interfere very materially with mobility of labor and constitute a very effectual barrier to the workers' determining their whole lives?

It seems to me that what we in America will have to do is to proceed on grounds that shall bring not only social insurance of a practically advantageous character but that shall help

1. Published in the Bulletin of the U. S. Bureau of Statistics, No. 212, page 845.

to develop individuality and personality and character and help to recognize the real struggle of the masses of the people, to encourage them in their struggle so that they may have the higher and the better opportunity for self development. What we should aim to do is to encourage voluntary associated effort of free individuals for their social insurance.

Industrial freedom exists only when and where wage earners have complete control over their labor power. To delegate control over their labor power to an outside agency takes away from the economic power of those wage earners and creates another agency for power. Whoever has control of this new agency acquires some degree of control over the worker. There is nothing to guarantee control over that agency to employees. It may also be controlled by employers. In other words, giving the government control over industrial relations creates a fulcrum which means great power for an unknown user.

The introduction of compulsory social insurance in cases of sickness, or compulsory social insurance in cases of unemployment, means that the workers must be subject to examinations, investigations, regulations and limitations. Their activities must be regulated in accordance with the standards set by governmental agencies. To that we shall not stand idly by and give our assent.

At this moment the peoples of the European countries engaged in this titanic, brutal struggle are organized, and they exhibit a virility and a ferocity unknown in the history of the world. The intensity of their labor, the intensity of their activity, is not a good standard by which anything now can be judged; but in our industrial, commercial, political and social fabric, the fabric of the United States, there has never been a people in the history of the world so virile in intellectuality, in industry, in intensity, as were and are our own, much misrepresented even though they be.

Men and women, I trust I may not be sounding my warnings on the empty air. I hope that they may find a lodgment in the minds and the hearts of my countrymen. I bid you have a care in all these attempts to regulate the personal relations and the normal personal activities of the citizenship of our country ere it be too late.

There is in the minds of many an absence of understanding of the fundamental essentials of freedom. They talk freedom and yet would have bound upon their wrists the gyves that would tie them to everlasting bondage. And no matter how sympathetic or humanitarian is the gloss over the plan and the scheme, I again bid you beware. We know not when or how this great struggle going on in Europe will terminate, or what it shall mean for the future of those countries; but at least let the people of the United States hold their liberties in their own hands, for it may come to pass that our America, the America whose institutions and ideals we so much revere, may be the one nation to hold the beacon light of freedom aloft and thus aid in relighting the torch, rekindling the heart flame of the world's liberty.

Last Saturday night I witnessed a sight in the harbor of New York City that thrilled me anew in the hope of the perpetuity of the principles on which our republic is based. I saw there the Statue of Liberty, and at the pressing of a button by the President of the United States the whole structure of that wonderful image was illumined and bathed with a light that could not but inspire the meanest of all. In the hand of the Statue of Liberty was a new construction, so that the flame in that torch might be visible to all who might see.

My hope is that we shall be enabled to sing, as we hope that the generations who follow us shall be enabled to sing—

My country, 'tis of thee,
Sweet land of liberty.

For a mess of pottage, under the pretense of compulsory social insurance, let us not voluntarily surrender the fundamental principles of liberty and freedom, the hope of the Republic of the United States, the leader and teacher to the world of the significance of this great anthem chorus of humanity—liberty!

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in *THE JOURNAL*, Sept. 15, page 232.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Mar. 19-21. Sec. Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

ALASKA: Juneau, September. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

ARIZONA: * Phoenix, Oct. 2-3. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: * Eclectic. Little Rock, Nov. 8. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: Oral. San Francisco, Nov. 11. Written. Sacramento, Oct. 15-18. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

CONNECTICUT: * Medical. Examination. Hartford, Nov. 13-14. Endorsement. Hartford, Nov. 27. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. Homeopathic. Derby, Nov. 13-14. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

FLORIDA: * Jacksonville, Nov. 26-27. Sec., Dr. Harold D. VanSchaick, 2736 S. W. Seventh Ave., Miami 36.

IDAHO: Boise, Jan. 15. Dir., Bureau of Occupational Licenses, Miss Agnes Barnhart, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, Oct. 9-11. Supt. of Registration, Department of Registration & Education, Mr. Philip Harman, Springfield.

KANSAS: Topeka, Dec. 6. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

MAINE: Portland, Nov. 13-14. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

MARYLAND: Medical. Baltimore, Dec. 11-15. Sec., Dr. J. T. O'Mara, 1215 Cathedral St., Baltimore. Homeopathic. Baltimore, Dec. 11-12. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 20-23. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MISSISSIPPI: Jackson, Sept. 26-27. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson 113.

MONTANA: Helena, Oct. 1-3. Sec., Dr. O. G. Klein, First Nat'l Bank Bldg., Helena.

NEW JERSEY: Trenton, Oct. 16-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, Oct. 8-9. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Oct. 1-4. Sec., Dr. Jacob L. Lochner, Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: Endorsement. Columbus, October. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

RHODE ISLAND: * Providence, Oct. 4-5. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, Nov. 13. Sec., Dr. N. B. Heyward, 1329 Blandford St., Columbia.

SOUTH DAKOTA: * Pierre, Jan. 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

VERMONT: Burlington, March or April 1946. Sec., Dr. F. J. Lawliss, Richmond.

WEST VIRGINIA: Charleston, Oct. 4-6. Commissioner, Public Health Council, Dr. John E. Offner, State Capitol, Charleston 5.

WISCONSIN: * Madison, Jan. 8-10. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, Oct. 1-2. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: Oct. 13. Address State Board of Healing Arts, 250 Church St., New Haven 10.

DISTRICT OF COLUMBIA: Washington, Oct. 22-23. Sec., Commission on Licensure, Dr. G. C. Rubland, 6150 E. Municipal Bldg., Washington.

FLORIDA: DeLand, Nov. 3. Sec., Dr. J. F. Conn, Box 655, DeLand.

IOWA: Des Moines Oct. 9: Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MICHIGAN: Ann Arbor and Detroit, Oct. 12-13. Sec., Miss Eloise LeBeau, 701 N. Walnut St., Lansing.

MINNESOTA: Minneapolis, Oct. 2-3. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis 14.

NEBRASKA: Omaha, Oct. 2-3. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln 9.

SOUTH DAKOTA: December. Sec., Dr. J. D. Alway, Aberdeen.

TENNESSEE: Memphis, Sept. 24-25. Sec., Dr. O. W. Hyman, 84 Union Ave., Memphis.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Conclusion of Medical Advisory Board Unsupported by Facts Not Binding on Industrial Commission.—While lifting a 70 pound ladder in the course of his employment, April 13, 1942, Tashner lost his balance and in an effort to prevent the ladder from falling on a near-by window he severely wrenched or strained his back, the immediate effect being a sharp pain in the lower part of his back. He completed work that day with considerable difficulty. Thereafter he was bedridden for some time. Admittedly, since the industrial accident he has not been able to perform any manual labor which entailed in any way the use of the back. For the first ten months of 1943 he was under the care and observation of the physicians whose services were paid for by the Industrial Commission of Arizona. The only objective symptoms discovered were a very narrow disk space between the vertebral body and the base of the sacrum, causing them to be almost in contact, and a condition described as fascitis, an inflammation of the tissues covering the left buttock muscles of a cordlike character. Apparently, either of these conditions could have resulted from the trauma and strain incident to the injury. The subjective symptoms were continual pain and tenderness in the region of the lower vertebrae on the left side and the left buttock. Various tests applied by the physicians employed by the commission ruled out any possibility that Tashner's condition was the result of any disease, infection or constitutional or postural defect. Concededly he was not malingering. Significantly, prior to the industrial accident he had never suffered from backache, sustained injury or lost time.

On Nov. 8, 1943 the medical advisory board provided for by the workmen's compensation act of Arizona examined the workman and filed a report finding the medical facts substantially as stated. The board, however, concluded that in its opinion "any disability he may have suffered as the result of his accident has terminated." Based on the opinion of the board, the Industrial Commission ceased payment to him of compensation, which he had been receiving since August 1942. The commission about a year later granted a rehearing to the workman on his claim that his disability still persisted. At the hearing he produced witnesses who testified that from the period of the medical board's findings until the date of the rehearing he continued totally disabled. Reports of the commission's own investigators confirmed this fact. The workman, however, produced no medical expert witnesses to report on his condition at the hearing, allegedly because he was without means to employ them. Nevertheless as a result of the rehearing the commission confirmed its order of the previous year, finding that the workman had no disability as a result of his injury from and after the report of the medical advisory board in November 1943. The workman then brought certiorari to the Supreme Court of Arizona.

This court, said the Supreme Court, has uniformly held that, where an order or finding of the Industrial Commission is based on reasonable evidence, it will be upheld. The only evidence in the record which supports the commission's order is the conclusion of the medical advisory board, as made on Nov. 8, 1943. The sole question is, does this conclusion afford reasonable evidence to support the award? If it does not, the case must be reversed and the order set aside. It is for the Industrial Commission, not the medical advisory board, to determine whether or not disability has ceased. The commission should, and must, give due weight and consideration to the opinion of the medical board, but it is not bound by its conclusions, particularly where the conclusions are wholly unsupported by the actual facts or,

as here, contrary to the medical history and findings. It is the medical findings rather than the conclusion which constitute evidence. Obviously a conclusion or opinion which is counter to the actual facts or findings, and which on the face of the record is illogical and without support, cannot be treated as reasonable evidence. We have carefully read the report of the medical advisory board. Various examinations made by competent physicians disclose that the workman's disablement is not the result of any disease, infection or other natural defect. There was no improvement in his condition; he had the same tenderness; the condition described as fascitis still existed. There is no showing that the narrowed disk space between the vertebral body and the base of the sacrum had become normal. The petitioner was still disabled. There is nothing to indicate from the record that the workman's condition was from any cause other than that which might well have resulted from his industrial injury. The report is replete with showings that the workman's condition was not the result of any disease or other like cause, and there is no finding in the report that his condition was not caused by, or was not the result of, the injury. From the medical advisory board's own report we can find no support for its conclusion and therefore hold that no reasonable evidence exists in support of the findings of the Industrial Commission.

The Supreme Court accordingly set aside the award of the Industrial Commission and in effect ordered the continuance of compensation payments to the workman.—*Tashner v. Industrial Commission*, 157 P. (2d) 608 (Ariz., 1945).

Malpractice: Dentists; Extracted Tooth Lodged in Bronchus.—The defendant dentist, after administering "gas and ether," extracted sixteen of the plaintiff's teeth, April 5, 1940. When the patient "came out of the ether" she was nauseated and bled profusely. She returned home, remaining in bed for several days. She had a "bad" cough, suffered a constant pain in the chest and had difficulty in breathing. This condition persisted, and early in May her attending physician sent her to a hospital for roentgenographic examination; but nothing was discovered at that time to account for her condition. For the next fifteen months her chest was sore and she "suffered dry coughing spells and raising of blood" and from time to time she went to a hospital for examination, treatment and the taking of roentgenograms. During a "coughing spell" in July 1941 she disorged a tooth fragment. Her health immediately began to improve and the pain in her chest disappeared. A review of her "x-ray record" revealed the presence of a tooth fragment in the left lower bronchus. Subsequently she instituted action against the dentist, alleging negligence on his part in permitting the extracted tooth in question "to fall down her throat." At the close of the patient's evidence the trial court directed a verdict in favor of the dentist, and the plaintiff brought exceptions to the Supreme Judicial Court of Massachusetts, Middlesex.

We believe, said the Supreme Judicial Court, that the action of the trial court in directing a verdict in favor of the dentist was error. From the evidence presented, the jury would have been warranted in finding that one of the plaintiff's teeth became lodged in her bronchus and that it got there through the negligence of the defendant while extracting sixteen of her teeth April 5, 1940. This is not a case in which a finding of negligence must rest on mere conjecture. We have not overlooked the fact that the plaintiff offered no expert evidence on the issue of the defendant's negligence. Ordinarily a jury will not be permitted without the aid of expert evidence to determine whether the conduct of the dentist or physician is a breach of the duty owed to a patient. But, although exceptional, the facts in a malpractice case may show that jurymen out of their common knowledge and experience are able to pass on this question. We think that the present case comes within this class.

Accordingly the appellate court in effect reversed the action of the trial court and remanded the cause for further proceedings.—*Malone v. Bianchi*, 61 N. E. (2d) 1 (Mass., 1945).

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore 15:165-214 (May) 1945

- Lepromatous Leprosy: Reticuloendothelial Disease: Histopathologic Aspects. I. L. Tilden.—p. 165.
Studies on *Dientameba Fragilis*: Its Incidence and Possible Pathogenicity. Elta W. Knoll and Katharine M. Howell.—p. 178.
Graves' Disease Treated with Thiouracil, with Autopsy Report. R. O. Muether and W. A. D. Anderson.—p. 184.
Effect of Colchicine on Human Tissues. W. O. Brown and L. Seed.—p. 189.
Overlapping of Color Development in Analysis of Thiocyanates and Salicylates in Blood Serum. R. F. Norris, V. E. Martens and F. W. Sunderman.—p. 196.
Glomus Tumor of Triceps Muscle: Case Report. W. M. German.—p. 199.
*Cold Isohemagglutinins: Their Association with Hemolytic Anemia and Multiple Thromboses in Primary Atypical Pneumonia: Brief Review of Clinical and Laboratory Problems Involved. W. R. Platt and C. S. Ward Jr.—p. 202.
*Note on Stability of Cold Hemagglutinins. L. A. Erf.—p. 210.

Cold Isohemagglutinins in Primary Atypical Pneumonia.—According to Platt and Ward, cold hemagglutination is generally recognized to be distinct from the better known isoagglutination reactions between the various human blood groups and subgroups. The pseudoagglutination seen in serums with elevated globulin and fibrinogen concentrations and the so-called Huebener-Thomsen phenomenon exhibited in erythrocytes that have been acted on by bacteria, whereupon they demonstrate the property of panagglutination, must also be placed in separate categories. Differing from the atypical warm agglutinins, which are produced by isoimmunization and which react strongly in vitro at 37 C. and which are practically inactive at 25 C., these cold agglutinins show agglutination at 20 C. or lower. The latter agglutinins are also often referred to as autoagglutinins, since they may agglutinate and hemolyze the individual's own corpuscles when the temperature is reduced. The phenomenon occurs in primary atypical pneumonia, complicated mumps, scarlet fever, tonsillitis, measles, Oroya fever, lobar pneumonia, rheumatic heart disease, subacute bacterial endocarditis, kala-azar, chronic tuberculosis, hemolytic anemia, paroxysmal hemoglobinuria, leukemia, pernicious anemia, lymphoblastoma, thrombocytopenic purpura, trypanosomiasis, relapsing fever, hepatic cirrhosis, Raynaud's syndrome, acro-gangrene, pregnancy, venous thrombosis, pulmonary embolism, bronchogenic carcinoma and carcinoma of the ileum and following splenectomy. The most significant and consistent occurrence of cold agglutination is that seen in the second week of the majority of cases of primary atypical pneumonia. The authors' patient, a woman with primary atypical pneumonia associated with cold isohemagglutinins, hemolytic anemia and multiple thromboses, required operative amputation for pedal gangrene. Although the reaction *per se* cannot be said to have any significant specificity, it is of some value in confirming a previous diagnosis of primary atypical pneumonia.

Stability of Cold Hemagglutinins.—Erf studied 2 serums, both of which contained cold agglutinins in exceptionally high titer. The titer of cold agglutinins of the serum of 1 patient was 1:250,000 in the fresh fluid state, 1:16 after thirty days' storage at ice box temperature and 1:8 after fourteen months' storage in the frozen state. Another sample of the serum, which was dried, retained a titer of 1:64 after fourteen months' storage when restored to the isotonic state and 1:256 when restored to two times isotonicity. The cold agglutinins disappeared from

the blood of the patient six weeks after the onset of the viral pneumonia. In the second patient the observations on the cold titer were similar to those in the first. This patient had nausea, vomiting and diarrhea of possible viral origin.

American Journal of Diseases of Children, Chicago 69:339-418 (June) 1945

- *Effects of Severe Rickets in Early Childhood on Skeletal Development in Adolescence. E. C. Dunham and H. Thoms.—p. 339.
Hemoglobin Values for 2,205 Rural School Children in Florida. O. D. Abbott, Ruth O. Townsend and C. F. Ahmann.—p. 346.
Intestinal Polyparasitism: Clinical Survey of 161 Cases of Infection with Multiple Intestinal Parasites in Children. N. H. Einhorn, J. F. Miller and L. Whittier.—p. 350.
Ancylostomiasis and Strongyloidiasis: Clinical Survey of 71 Cases of Ancylostomiasis and 11 Cases of Strongyloidiasis in Children. J. F. Miller, N. H. Einhorn and L. Whittier.—p. 359.

Rickets in Early Childhood and Skeletal Development in Adolescence.—A group of 10 children who in early childhood had shown evidence of severe rickets were reexamined in adolescence. These 10 subjects were selected by Dunham and Thoms because they were examples of the most severe and prolonged type of rickets occurring in early childhood and not because of any special abnormalities in adolescence. Six of the children were boys, and 4 were girls. On the basis of the pelvic roentgenograms these 10 children fall into two groups: 5 children who had rachitic pelvis in adolescence and 5 who had nonrachitic pelvis. Of the 5 adolescent children with rachitic pelvis 3 were more than 4 years of age when active rickets was diagnosed; of the 5 whose pelvis were normal 4 were less than 3 years of age when active rickets was diagnosed. Apparently, the older the child at the time when active rickets of a moderate or severe degree is present, the greater is the chance that the pelvis will show rachitic deformities in adolescence. Physical examination showed that all 10 children had in adolescence some deformity of the lower extremities. In the children who had had severe rickets in early childhood knock knees were associated more often with rachitic deformities of the pelvis than were bow legs. Severe or moderate deformities of the spine or of the lower extremities were found in early childhood as often in the group with normal pelvis in adolescence as in the group with rachitic pelvis. Differences in the two groups were found in the incidence of knock knees in early childhood: Of the 5 children with rachitic pelvis in adolescence 2 had had knock knees in early childhood and 2 had had bow legs. Of the 5 children with normal pelvis in adolescence none had had knock knees in early childhood. Observations suggest that if knock knees were present in early childhood the pelvis in adolescence is more likely to show the deformities of rickets than if bow legs were present in early childhood.

American Journal of Medical Sciences, Philadelphia 209:701-832 (June) 1945

- Therapeutic Use of Radioactive Phosphorus. S. Warren.—p. 701.
Radioactive Phosphorus in Treatment of Polycythemia Vera: Results and Hematologic Complications. B. E. Haff, C. H. Watkins, M. M. Hargraves and H. Z. Giffin.—p. 712.
Recent Studies on Yellow Bone Marrow Extracts. J. E. Caldwell, R. H. Sifferd, J. D. Porsche and F. Fenger.—p. 717.
*Abdominal Crises in Uncomplicated Sickle Cell Anemia: Clinicopathologic Study of 11 Cases, with Suggested Explanation of Their Cause. W. J. Tomlinson.—p. 722.
Artificial Production and Significance of Target Cells, with Special Reference to Their Occurrence in Thalassemia (Cooley's Erythroblastic Anemia). W. N. Valentine and J. V. Neel.—p. 741.
Case of Eczema as Source of Streptococcal Epidemic. G. K. DeForest and Lorane M. Kerr.—p. 752.
Effect of Simultaneous Tuberculous Infection on Experimental Trichinella Infestations in Guinea Pigs. O. T. Davis, G. T. Harrell and E. S. King.—p. 758.
Clinical Aspects of Pain in Chest: II. Pain Arising from Esophagus. T. R. Harrison.—p. 765.
Id.: III. Pain Arising from Stomach. T. R. Harrison.—p. 771.
*Penicillin in Treatment of Intractable Bronchial Asthma: Preliminary Report. S. S. Leopold and R. A. Cooke.—p. 784.

Abdominal Crises in Sickle Cell Anemia.—Tomlinson of the Gorgas Hospital in the Canal Zone describes a clinicopathologic picture of abdominal crises in 11 uncomplicated cases of sickle cell anemia. Four of the patients were dead on arrival at the hospital or died before they were seen by a physician. All but 3 of the patients were children less than 6 years of age, the 3 being 9, 11 and 18 years of age respectively. Of the

7 patients examined during life, 5 were in shock. The clinical picture was characterized by sudden onset of distress, pain, rigidity or tenderness in the abdomen usually accompanied by nausea and vomiting, occasional pain or tenderness in the muscles and bones, severe malaise, chill and fever; frequent jaundice, early, rapid peripheral vascular collapse with shock and central nervous system involvement. Clinical laboratory studies revealed severe normochromic anemias with an absolute increase in mononuclear cells; nucleated erythrocytes and sickled forms were an almost constant finding, and the icterus indexes were increased. Postmortem examinations revealed congestive and degenerative changes in the capillaries and small venules of the brain, pyramidal cell degeneration, glial proliferation and corpora amylacea. In the hearts there were hypertrophy, fatty changes, albuminous degeneration, edema and fragmentation of the myocardial fibers. The livers showed congestion and extensive phagocytosis of sickled erythrocytes by the reticuloendothelial cells, and the same findings were present in the lymph nodes. The spleens were enlarged in 8 of the 11 cases and showed congestion and "pooling," together with fibrosis of the capsule, trabeculae and reticular stroma. The clinical symptoms at the onset of abdominal crises in sickle cell anemia are remarkably similar to Wintrobe's description of the symptoms of rapid destruction of blood. It is felt that the symptoms are due at first to increases in the number of sickled cells and their removal from the circulation with rapidly developing shock. A possible explanation for the shock is that the anoxia accompanying anemias is increased in severity in sickle cell anemia, as sickled erythrocytes do not carry or are poor carriers of oxygen to the body tissues; the heart in severe anemia is weakened; sickled erythrocytes have a tendency to pack or jam in small capillaries; the capillary anoxia results in plasma loss, hemoconcentration and stagnation, and the stagnation removes available erythrocytes from the circulation, increasing circulatory failure and anoxia and perpetuating the vicious cycle of shock. Transfusions may greatly alter the clinical picture. Transfusions must not be given from persons showing the sickling trait.

Penicillin in Bronchial Asthma.—Leopold and Cooke present the histories of 2 patients with intractable continuous bronchial asthma. The first patient was given intramuscular injections of penicillin until a total of 1,375,000 units had been given, the daily dose being 100,000 units. The second patient was given the same daily dose for ten days. In the first patient, following treatment, there was complete remission of asthmatic symptoms for almost four months, although frequent examinations of the lungs during this time revealed the almost constant presence of sibilant rales. No such remission had occurred in the fifteen previous years. An acute upper respiratory infection produced the expected recurrence of asthma; its subsidence has been followed by subjective relief, although sibilant rales were usually present. In case 2, four months have elapsed with no subjective asthma. Twenty-five additional patients with intractable asthma have either been treated with penicillin very recently or are under treatment at the present time. Penicillin is not a panacea for all cases of asthma due to infection, for some patients have shown no improvement after penicillin therapy. It is possible that this drug may be helpful in treatment of two groups of asthmatic patients: those with both extrinsic and intrinsic asthma, provided the extrinsic factors are properly controlled, and those who have only intrinsic disease. It is possible that penicillin may be of value in that group of cases in which the bacteria recovered from the sputum or from the upper respiratory tract are shown to be sensitive to penicillin in vitro.

American Review of Soviet Medicine, New York

2:388-480 (June) 1945

- Orthopedic Surgery in USSR. V. D. Chaklin.—p. 388.
Treatment of War Injuries of Skeletal System. P. D. Wilson.—p. 395.
Orthopedic Surgery in USSR and U. S. A. T. F. Cooper.—p. 406.
Agonal States and Clinical Death: Problems in Revival of Organisms. V. A. Negovski: Chapter III. Respiration and Circulation During Death and Revival of Exsanguinated Animal.—p. 408.
Analasine Sulfate: Protective Agent Against Bites of Malarial Mosquitoes. V. A. Nabokov.—p. 449.
Treatment of Peripheral Nerve Trauma. M. L. Borovski.—p. 453.

American Review of Tuberculosis, New York

51:489-600 (June) 1945

- *Tuberculosis as a Military Problem. E. R. Long.—p. 489.
Thoracoplasty: Report on 240 Consecutive Patients. P. D. Crimm.—p. 505.
Conversion of Pulmonary Secretions Following Collapse Therapy. J. D. Steele.—p. 514.
Bronchography in Pulmonary Tuberculosis: IV. Geographic Adventure. B. A. Dormer, J. Friedlander and F. J. Wiles.—p. 519.
Roentgenology of Massive Conglomerate Lesions of Silicosis. M. R. Camiel.—p. 527.
*Effect of Altitude on Abnormal Accumulations of Air in Chest. E. Bridge and E. Bridge.—p. 532.
Tuberculin Testing of Pregnant Women. M. J. Seid.—p. 537.
Patient Education in Rehabilitation. Helen M. Becht.—p. 539.
Penicillin in Treatment of Pyogenic Empyema Complicating Therapeutic Pneumothorax: Report of 2 Cases. K. S. Howlett Jr., and D. E. Lester.—p. 546.
Military Tuberculosis of Liver. G. A. Wolf Jr., and C. M. Flory.—p. 553.
Blood Iodine in Pulmonary Tuberculosis. K. P. Klassen, Elsie L. Riley and G. M. Curtis.—p. 561.
In Vitro Phagocytosis: In Vitro Phagocytic Cell Sensitivity in Normal, Tuberculoanaphylactic, Tuberculoallergic and Tuberculous Guinea Pigs. H. J. Corper, M. L. Cohn and R. E. Stoner.—p. 566.
Spleen Appearance Time of Tubercle Bacilli as Related to Dosage of Bacilli. C. E. Woodruff, Ruby G. Kelly and Mary A. Leaming.—p. 574.
Chemotherapeutic Testing in Experimental Tuberculosis: Suggested Outline of Laboratory Procedures for Testing Antituberculosis Substances in Experimentally Infected Animals. W. H. Feldman and H. C. Hinshaw.—p. 582.

Tuberculosis a Military Problem.—According to Long, exclusion of tuberculosis from the Army in the first world war was carried out by physical examination. Auscultation of the chest was skilful and possibly superior in character to that practiced today. It was far inferior in the detection of tuberculosis to modern x-ray methods. While physical examination of the chest is an integral part of induction station examinations, maximum reliance is placed on the x-ray appearance. Nothing illustrates more clearly the value, and at the same time the limitations, of preinduction x-ray examinations than a comparison of the admission rates for tuberculosis in the first world war and in the present war. The rate in the war of 1914-1918 was approximately ten times that for the present war. It must not be assumed, however, that the difference is entirely due to improved methods of detection in the present war. Fewer cases, relatively, were to be excluded in the present war, for the incidence of tuberculosis in the general population at the present time is approximately one third of that prevailing in the period of the first world war. Cases developing in the United States Army in the present war for the most part represent extension from small areas of infiltrative tuberculosis not previously detected. Extension from scarred and calcified primary lesions has not been demonstrated. Statistics suggesting an increasing amount of exogenous infection overseas have been reported in the Canadian army, but indications are not yet at hand of a comparable situation in our army. The predominant type of tuberculosis occurring in our army is the chronic, ulcerative, pulmonary form. Acute forms are relatively rare, at least in the white race, and up to the present, while numerous advanced cases have been returned from overseas, indications are not evident that climate or any specific environment is a factor in the development of fulminating disease. Great progress has been made in evacuation of patients, particularly by air. All active tuberculosis is cause for discharge, but arrangements are in effect for preliminary treatment in the Army and indoctrination on the great importance of continuation of care after separation from the service and establishment of veteran's status.

Effect of Altitude on Air in Chest.—Civil aircraft usually fly at altitudes less than 10,000 feet above sea level, but higher altitudes may be occasioned by mountainous country or storms. The Bridges point out that exposure to lowered barometric pressures will cause expansion of abnormal accumulations of gas in the patient's chest, depending on the rigidity of the tissue walls enclosing the gas. The enclosing walls of uncomplicated intrapleural pneumothorax present the least resistance to gaseous expansion, because the elasticity of the lungs encourages their collapse. The hazard of reduced barometric pressure is magnified by increasing altitude, and the greater the amount of gas producing the pneumothorax the greater will be the collapse of

the lung. A patient carrying 1,000 cc. of intrapleural air at sea level will have the equivalent of 1,490 cc. at 10,000 feet and 2,120 cc. at 18,000 feet. With an increase in effective pneumothorax there can be a contralateral shift of the mediastinum and partial collapse of the opposite lung. It is apparent that pneumothorax which is tolerable for the patient at sea level could endanger his life at a high altitude. Pneumothorax complicated by mediastinal hernia or by visceroparietal adhesions offers the risk of increasing the hernia or rupturing the adhesions. The greater the tension of the adhesions, the more likely they are to rupture. A pulmonary cavity, unless communicating freely with a bronchus or possessing very rigid walls, could be expected to expand. Expansion of the cavity might rupture its walls, disseminate infective material or induce hemorrhage by severing vessels traversing the cavity. Expansion of gas producing mediastinal and subcutaneous emphysema could cause further dissection by emphysematous tissue when subjected to reduced pressure. The following conditions contraindicate air travel for patients with abnormal accumulations of air in the chest: (1) cyanosis or dyspnea, (2) recent hemoptysis, (3) visceroparietal adhesion, (4) mediastinal hernia, (5) mediastinal displacement, (6) pulmonary cavity containing fluid or with signs of intermittent bronchial communication or with closed bronchial communication, (7) mediastinal emphysema and (8) pulmonary emphysema with dyspnea. They believe that air travel should be restricted to those patients who would have no respiratory or circulatory distress and no physical discomfort if the abnormally accumulated air in the chest was doubled.

Archives of Neurology and Psychiatry, Chicago

53:399-464 (June) 1945

- Disturbances in Sleep Mechanism: Clinicopathologic Study—I. Lesions at Cortical Level. C. Davison and E. L. Demuth.—p. 399.
 *Denial of Blindness by Patients with Cerebral Disease. F. C. Redlich and J. F. Dorsey.—p. 407.
 Synkinetic Pupillary Phenomena and Argyll Robertson Pupil. M. B. Bender.—p. 418.
 Lateral Spinothalamic Tract and Associated Tracts in Man. E. Gardner and H. M. Cuneo.—p. 423.
 Electroencephalographic Findings in Cases of Bromide Intoxication. M. Greenblatt, S. Levin and B. Schegloff.—p. 431.

Denial of Blindness by Patients with Cerebral Disease.—Redlich and Dorsey observed 6 instances of denial of blindness over a period of eighteen months in a 600 bed hospital. Most examiners are reluctant to make any attempt to stress forcibly to the patient such a severe defect as blindness. All patients who present such a syndrome are deteriorated and have disturbances of retention and orientation, hallucinations and delusions. The syndrome of denial of their own blindness in the authors' patients was caused by diabetic retinopathy in 1 patient, by atrophy of the optic nerve in another, and by bilateral hemianopsia due to tumor or to vascular lesions in 4 patients. All patients had diffuse cerebral lesions. All showed intellectual deterioration: disorientation, severe impairment of recent memory and retention, and confabulation. The existence of bilateral focal lesions of the visual radiations or of the occipital visual areas leading to bilateral hemianopsia seems to play an important part in the pathogenesis of the syndrome. The interruptions of reverberating circuits between the thalamus and the sensory cortex constitute the most prominent etiologic factor.

Archives of Ophthalmology, Chicago

33:429-516 (June) 1945

- Treatment of Bilateral Retinoblastoma (Retinal Glioma) Surgically and by Irradiation: Report on Progress. H. Martin and A. B. Reese.—p. 429.
 Ocular War Neuroses. H. L. Birge.—p. 440.
 Electron Microscopic Observations on Bacteriolysis Produced by Lysozyme of Tears. B. Babudieri and G. B. Bietti.—p. 449.
 Penicillin Therapy of Infections of Vitreous. L. Von Sallmann.—p. 455.
 Influence of Local Application of Sulfonamide Compounds and Their Vehicles on Regeneration of Corneal Epithelium. I. H. Leopold and W. H. Steele.—p. 463.
 Chorioideremia: Report of Case. H. Magder.—p. 468.
 Parinaud's Oculoglandular Syndrome Due to Yeastlike Organism. F. H. Theodore.—p. 471.
 Management of Paralysis of Divergence. S. Kamellin.—p. 476.
 Visual Exercises in Ophthalmology. J. I. Pascal.—p. 478.

Archives of Surgery, Chicago

50:223-276 (May) 1945

- Subtotal Gastrectomy. E. R. Schmidt and D. W. Melick.—p. 223.
 Postoperative Gouty Arthritis. B. J. Ficarra and R. Adams.—p. 229.
 Acrylic Resin as Implant for Correction of Facial Deformities. K. W. Penhale.—p. 233.
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 Degenerative White Blood Cell Picture as Indication of Toxemia from Burns. J. Van Duyn II.—p. 242.
 Congenital Malformations of Anus and Rectum: Clinical Study. E. T. Dmytryk.—p. 253.
 Acute Appendicitis in Childhood. H. W. Scott Jr. and P. F. Ware.—p. 258.
 Surgical Treatment of Lymphedema. J. L. Ransohoff.—p. 269.
 *Internal Derangements of Knee Joint. R. F. Jaekle.—p. 271.

Internal Derangements of Knee Joint.—Jaekle reports 190 arthroscopies of the knee joint performed in military personnel in the Station Hospital, Camp Roberts, Calif., within a two year period. An equal number of patients with affected knee joints were not operated on and have since been reclassified or discharged. Many of these patients had deranged joints before their entry into the service and had been advised by their own physicians not to have operations. The patient was taught exercises for the quadriceps muscle before the operation and was impressed with the idea that his cooperation was the deciding factor in a successful operation. Analysis of operative results in 155 cases of torn semilunar cartilages showed that lack of immobilization, early exercises and weight bearing give quicker return of function. Simple excision of bucket handle tears is sufficient, and in so-called complete excision a thin margin of cartilage should remain. One hundred and thirty-two men (85.16 per cent) have returned to duty on an average of twenty-five days following operation for injuries incurred from a few days to eleven years before. The results justify immediate operation because the total time lost from recurrence of injury will be considerably more with conservative treatment. The longer the torn cartilage remains the more likely it is that joint surfaces will become damaged and that a complete cure cannot be obtained. Hypertrophic fat pads are not generally recognized as a frequent derangement of the knee joint, but operation is warranted because of recurrences of symptoms and possible damage to the joint.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

4:1-122 (July) 1945

- Problems of Disease in Far East. F. R. Dieuaide.—p. 57.
 Medical Aspects of Amphibious Operations in Pacific Ocean Areas. J. M. Willis and G. J. Menaker.—p. 61.
 Scrub Typhus. R. O. Sather and J. S. Silberstein.—p. 68.
 Prosthesis of Eye in Synthetic Resin: Preliminary Report. S. F. Erpf, V. H. Dietz and M. S. Wirtz.—p. 76.
 *Treatment of Diphtheria Carriers with Penicillin. B. B. Berman and S. H. Spitz.—p. 87.
 Combat Psychiatry. C. S. Drayer and S. W. Ranson.—p. 91.
 Meningococcic Pneumonia. N. B. Roberg.—p. 97.

Treatment of Diphtheria Carriers with Penicillin.—Berman and Spitz applied penicillin locally to the nose and throat of a group of diphtheria carriers in an attempt to revert them quickly to a noncarrier status. A patient was not considered a carrier unless diphtheria organisms had been found in culture of the nasopharynx for a period of more than three weeks. In a group of diphtheria cases, 22 fell into this category. These were divided into a control and a treated group. The control group of 12 cases had had positive cultures for *Corynebacterium diphtheriae* for four weeks. The treated group of 10 patients likewise had been positive for four or five weeks. The penicillin was dissolved in isotonic solution of sodium chloride so that 1 cc. contained 500 Oxford units. By means of an ordinary nose dropper, 1 cc. of this solution was instilled into both nares four times each day for five days. Immediately after instillation another 1 cc. was sprayed with an atomizer onto the fauces and posterior wall of the pharynx. The total amount of penicillin used per patient throughout the five day course was 20,000 units. The control group of patients was treated with hot saline gargles four times daily. In the 10 treated cases the throat cultures became negative within the treatment period or on the first day after cessation of therapy. Seven of the 12 patients in the untreated group reverted to

negative within the fifth week. The remaining 5 continued to be positive for six to seven weeks, after which it was decided to treat them with penicillin. All of these cases became negative as in the treated group; that is, within the five days of therapy or on the first day thereafter.

Bulletin of Johns Hopkins Hospital, Baltimore

76:179-220 (May) 1945

Sjögren's Syndrome. A. L. MacLean.—p. 179.
Further Observations on Self-Regulatory Dietary Selections of Rats Made Diabetic by Pancreatectomy. C. P. Richter, E. C. R. Schmidt Jr. and P. D. Malone.—p. 192.

California and Western Medicine, San Francisco

62:305-370 (June) 1945

*Fenestration Operation for Deafness. R. C. Martin.—p. 311.
Ambulatory Patients at Langley Porter Clinic: Their Management.—p. 312.
California State Board of Medical Examiners. F. N. Scatena.—p. 315.
Central Medical Registry: Some Thoughts Regarding Its Need. J. M. Askey.—p. 317.
Common Recalcitrant Dermatoses. J. L. Fanning.—p. 318.
Cerebral Vascular Accidents: Their Effect on State of Consciousness. C. W. Olsen.—p. 319.

Fenestration Operation for Deafness.—Several factors having to do with this operation will not be cleared up until enough cases have been amassed to allow for their proper evaluation. The oldest cases in which operation has been performed are now some six years since operation. In some of these the maintenance of improvement is remarkable. Martin sees no reason to suppose that the degeneration of the nerve will be halted by the operative procedure. This factor will have to await passage of time before it can be evaluated. If Gray's theory that the nerve change is primary and the bony change is trophic is correct, it will eventually prove that there will be no arrest of the disease by the operative procedure. As to the advantages of this procedure over wearing a hearing aid, those who have had a hearing aid and then obtained a successful fenestration result claim that there is no distortion of speech and that the selective amplification of speech over the attendant noises in everyday life returns as soon as their hearing improvement has become manifest after the operation. This amplification of incidental noises is one of the chief complaints against the hearing aids. The worse ear is usually operated on, and in the event of its loss through misadventure during the operation there is still a useful ear on which the hearing aid can be used.

Cancer Research, Baltimore

5:385-448 (July) 1945

Histogenesis of Benzpyrene-Induced Epidermal Tumors in Mouse. A. Glücksmann.—p. 385.
Disappearance of Carcinogenic Hydrocarbons in Autoxidizing Lipids. G. C. Mueller, J. A. Miller and H. P. Rusch.—p. 401.
On Tumor Producing Chemical Substances. L. M. Shabad.—p. 405.
Methylcholanthrene Papillomas and Virus Problem. W. H. Woglom.—p. 420.
Effect of X-Rays on Transmissibility of Fowl Sarcoma in Its Nonfiltrable Phase. B. Miszurki, M. Pikoyski, G. Goldhaber and L. Doljanski.—p. 422.
Effect of Progesterone and Testosterone Propionate on Incidence of Mammary Cancer in Mice. J. Heiman.—p. 426.
Influence of Caloric Restriction and of Dietary Fat on Tumor Formation with Ultraviolet Radiation. H. P. Rusch, B. E. Kline and C. A. Baumann.—p. 431.

Endocrinology, Springfield, Ill.

36:291-354 (May) 1945

Relation Between Tyrosinase and Estrinase in Potato Extracts. B. Zondek and M. Finkelstein.—p. 291.
Effects of Oral and Parenteral Administration of New Synthetic Estrogen Benzestril in Rat. E. W. Blanchard and R. B. Stebbins.—p. 297.
Effects of New Synthetic Estrogen Benzestril on Hemopoietic System in Rat. R. B. Stebbins and E. W. Blanchard.—p. 305.
Influence of Estradiol and Testosterone Propionates on Skeletal Atrophy from Disuse and on Normal Bones of Mature Rats. W. D. Armstrong, Marjorie Knowlton and Mary Gouze.—p. 313.
Assay of Antidiuretic Material in Blood and Urine. K. Hare, Eleanor V. Melville, G. H. Chambers and Ruth S. Hare.—p. 323.
Antidiuretic Material in Supraoptic Nucleus. Eleanor V. Melville and K. Hare.—p. 332.
Effect of Adrenalectomy on Epiphyseal Cartilage of Rat. L. C. Wyman and Caroline Tum-Suden.—p. 340.

Epidemiological Information Bull., Washington, D. C.

1:365-402 (June 15) 1945

Standards for Manufacture and Control of Yellow Fever Vaccine.—p. 365.
Smallpox at Bay and at Large. K. Stowman.—p. 371.
Current Reports on Prevalence of: A. Plague, Cholera, Yellow Fever, Smallpox and Typhus.
Id.: B. Diphtheria.—p. 393.
Trend of Notifiable Diseases.—p. 394.

1:403-452 (June 30) 1945

Increase of Syphilis in Europe.—p. 403.
Spread of Scabies.—p. 405.
Significance of Death Rates.—p. 406.
International Sanitary Convention for Aerial Navigation of April 12, 1933. Modified by International Sanitary Convention for Aerial Navigation 1944.—p. 410.
Current Reports on the Prevalence of: A. Plague, Cholera, Yellow Fever, Smallpox and Typhus.—p. 439.
Id.: B. Typhoid Fever, Paratyphoid Fevers and Poliomyelitis.—p. 450.

Illinois Medical Journal, Chicago

87:217-268 (May) 1945

Occupational Dermatoses (Diagnosis, Management, Prevention). C. J. White.—p. 227.
Recent Trends in Radiation Therapy of Cancer. R. T. Pettit.—p. 232.
Problems in Care of Newborn. E. T. McEnery.—p. 237.
Value of Spot Films in Radiography of Gastrointestinal Tract. F. L. Hussey.—p. 242.
Edema of Eyelids in Infections of Paranasal Sinuses. M. R. Folk and H. Brunner.—p. 245.
Gonorrheal Ophthalmia Neonatorum: Case Report. A. A. Baraff.—p. 249.
Irritative Effects of Smoke from Tobacco Treated with Glycerin and Diethylene Glycol. W. D. McNally, W. Bergman and R. H. K. Foster.—p. 250.

Iowa State Medical Society Journal, Des Moines

35:247-320 (July) 1945

Malaria in Returning Service Personnel. P. F. Russell.—p. 247.
Ringworm of Scalp Due to Microsporon Audouini: Report of Cases.—p. 253.
Chronic Hemolytic Anemia with Paroxysmal Nocturnal Hemoglobinuria: Case Report. J. E. Flynn.—p. 255.

35:321-352 (Aug.) 1945

Calcium Phosphate Renal Lithiasis: Important Aspects in Symptomatology, Diagnosis and Treatment. R. H. Flocks.—p. 321.
Bronchial Asthma. G. E. Mountain.—p. 324.
Poliomyelencephalitis (Anterior Poliomyelitis). J. E. Flynn.—p. 327.

Journal of Aviation Medicine, St. Paul

16:47-108 (April) 1945

Night Blindness in Flying Personnel: Observations on Patients Studied at AAF School of Aviation Medicine. W. M. Rowland and L. L. Sloan.—p. 49.
*Effect of Hyoscine on Airsickness. J. L. Lilienthal Jr.—p. 59.
Aviation Nutrition Studies: I. Effects of Preflight and Inflight Meals of Varying Composition with Respect to Carbohydrate, Protein and Fat. C. G. King, H. A. Bickerman, Winifred Bouvet, C. J. Harter, J. R. Oyler and C. P. Seitz.—p. 69.
Application to Commercial Aviation of Some Physiologic Factors Developed by Military Aviation Medicine. L. G. Lederer.—p. 85.
Spontaneous Subarachnoid Hemorrhage Occurring in Pilot During Flight. J. O. W. Rash and F. M. Goldys.—p. 91.
Episcleritis in Flying Officer. L. J. Agin.—p. 96.
Effect of Thionurea on Mice Undergoing an Abrupt Reduction of External Atmospheric Pressure. T. S. Gardner and F. B. Forbes.—p. 99.
Further Study on Muscular Cramps and Hyperventilation Syndrome in Fliers in ETO. W. G. Beckman.—p. 101.

Effect of Scopolamine on Airsickness.—A preventive and curative effect has long been ascribed to scopolamine in seasickness. The pharmacologic rationale for the use of scopolamine in motion sickness is based on its anticholinergic activity and its well recognized sedative and tranquilizing central effects, but the actual mode of action is unknown. In contrast to atropine, to which it is closely related, scopolamine in therapeutic doses produces little or no mydriasis, cycloplegia, tachycardia or suppression of salivation and sweating. These properties make scopolamine peculiarly adapted for use in aviation. Lilienthal investigated the effect of scopolamine hydrobromide on motion sickness in aircraft in a group of aviation cadets. These subjects were well suited to this study by virtue of their previous flight experience (approximately two hundred hours) and because they spent two thirds of these flights in nonpiloting duties, in which airsickness is more likely to develop. On 531 cadet flights, when no drug was administered, 40 cadets became

obviously airsick, an attack rate of 7.5 per cent. On 200 cadet flights, when 0.6 mg. of scopolamine was administered perorally thirty to sixty minutes before flight, only 1 man became airsick, an attack rate of 0.5 per cent. On 239 subsequent cadet flights each cadet was given a lactose placebo indistinguishable from the scopolamine. In this group 15 cadets became airsick, an attack rate of 6.3 per cent. Encouraging results were encountered in the prevention of airsickness in individual susceptible subjects. The author concludes that scopolamine hydrobromide in doses of 0.6 mg. administered perorally thirty to sixty minutes before flight is a potent preventive of airsickness with insignificant side effects.

16:109-208 (June) 1945

- *Autokinetic Illusion and Its Significance in Night Flying. A. Graybiel and B. Clark.—p. 111.
- *Development of Active Pulmonary Tuberculosis as Probable Result of Decompression Sickness at Simulated Altitudes Above 40,000 Feet. A. L. Barach, A. E. Johnson and C. Rule.—p. 152.
- Duration of Consciousness in Anoxia at High Altitudes. C. G. Mackenzie, A. H. Riesen, J. R. Bailey, T. N. Tahmisian and P. L. Crocker.—p. 156.
- Quarantine Procedures with Special Reference to Air Travel. T. B. Magath.—p. 165.
- Naval Aviation Safety Program. M. T. Martin and K. S. Scott.—p. 175.
- Nutritional Control of Foods Served in Royal Canadian Air Force. J. W. Tice, F. F. Tisdall and J. F. McCreary.—p. 181.
- Survival Off the Land. R. A. Howard.—p. 187.
- Immediate Treatment of Burns at Naval Air Stations. J. G. Stübenbord 3d.—p. 192.
- Personal Equipment Officers and Care of Flier in AAF. S. R. M. Reynolds.—p. 202.

Autokinetic Illusion in Night Flying.—Graybiel and Clark found that autokinesis is universally experienced by normal persons. The period of delay before the onset of movement is almost always short, averaging approximately nine seconds. The median duration of a movement in a particular direction is approximately ten seconds. Movement is observed about half of the time. The rate of movement is usually slow but may be rapid. The angular displacement for most movements is not great, but exceptionally a large displacement occurs. Movement is seen in all directions. Voluntary control, including suppression of movement, is limited. Although the illusory effect increases and decreases respectively with increase and decrease of the visual frame of reference, it is not readily abolished. Under relatively simple conditions in the laboratory, which simulate certain features of flying in formation at night, the subject is frequently confused. He cannot always tell when a particular movement of the target begins or ends and often cannot distinguish real from apparent movement. Autokinesis is readily observed under favorable conditions during formation flights at night and probably offers the explanation for some of the accidents that have occurred. Autokinesis is decreased by factors which improve the spatial localization of objects, by rapid relative movement of the target and by periodically withdrawing the attention from an object for at least ten seconds. If it is not feasible adequately to reduce autokinesis, help can come through a knowledge of its characteristics. All aviators and probably the operators of certain other means of transportation should be made aware of the characteristics of this phenomenon and of the practical means by which it can be reduced, namely (1) using some fixed object (for example, the framework of any opening or part) as a reference point, (2) periodically interrupting any steady fixation of a target light, and (3) in case of doubt regarding the reality of an observed movement, placing reliance on the instruments, if these conflict with the pilot's perceptions.

Active Pulmonary Tuberculosis and Decompression Sickness.—Barach and his associates found that 2 physicians developed active pulmonary tuberculosis during the course of repeated exposure to altitudes of 42,000 feet. This exposure did not produce the original disease. It is considered probable that previous lesions were quiescent but were reactivated by local trauma to the lung parenchyma produced when air or other gases expanded in or near a tubercle. It is thought that air might have become trapped in an area of tuberculous infiltration or that bubbles of gaseous nitrogen formed within the tubercle during exposure to a low pressure atmosphere. In the case of gases trapped in the lung, this would amount to an increase of 8.8 times the sea level volume at an altitude of 42,000 feet. Disruptive forces, such as expansion of gases and

greater pressure differentials, might result in the tearing and rupture of a tubercle with cavity formation and liberation of viable tubercle bacilli into uncontaminated areas of the lung. The dangers described are unlikely when personnel are exposed to altitudes less than 18,000 feet, as in commercial flying.

Journal of Infectious Diseases, Chicago

76:163-240 (May-June) 1945

- Production in Vitro of Substances Resembling Antibodies from Bacteria. E. C. Rosenow.—p. 163.
- Studies on Pathogenesis of Leptospirosis. A. B. Stavitsky.—p. 179.
- Antibacterial and Fungistatic Properties of Propamidine. W. O. Elson.—p. 193.
- Neutralization of Poliomyelitis Virus by Dog Serums. F. B. Gordon.—p. 198.
- Antibody Response to Strains of Influenza A and Swine Influenza Viruses in Serums of Infants Experiencing First Infection with Influenza A. E. R. Rickard, M. P. Thigpen and J. M. Adams.—p. 203.
- *Effect of Triethylene Glycol Vapor on Air Borne Beta Hemolytic Streptococci in Hospital Wards: II. Combined Action of Glycol Vapor and Dust Control Measures. T. T. Puck, M. Hamburger Jr., O. H. Robertson and Valerie Hurst.—p. 216.
- Distribution and Localization of Sporozoites and Preerythrocytic States in Infections with Plasmodium Gallinaceum. F. Coulston, W. Cantrell and G. G. Huff.—p. 226.

Glycol Vapor and Dust Control.—Puck and his associates report that the introduction of triethylene glycol vapor into the air plus the application of dust control measures, to the floors and bedclothes of streptococcus sore throat wards resulted in a reduction in the number of air borne beta hemolytic streptococci of 93 per cent when the wards were quiet and 97 per cent during bed making periods. The dust prevention treatment by itself lowered the streptococcus count by 86 per cent during bed making but not at all when the ward was quiet. However, when glycol vapor was introduced into a ward in which dust prevention was already in effect there resulted a further reduction of the residual streptococci present in the air during both quiet and bed making periods. Glycol vapor concentrations maintained at a level just below the fogging point were found to be as effective as supersaturated atmospheres. The authors believe that the combination of triethylene glycol vapor plus dust preventive treatment of floors and bedclothes offers a promising means of controlling air borne infection in hospital wards.

Journal-Lancet, Minneapolis

65:235-264 (July) 1945

- Indications for Bronchoscopy in Pulmonary Disease. P. H. Hölinger.—p. 256.
- Fatigue as Symptom in Depressed Patients. G. R. Kamman.—p. 238.
- Malaria: Medical Observations in South China and Notes on Health Situation in an Internment Camp Under the Japanese. C. W. Lawson.—p. 241.
- Roseola Infantum. O. M. Moore.—p. 243.
- Needle Biopsy of Liver. F. W. Hoffbauer.—p. 246.
- Ophthalmology. E. W. Hansen.—p. 248.
- Use of Passive Transfer or Indirect Method of Skin Testing in Allergic Diseases. F. W. Wittich.—p. 249.
- Allergy in Dermatology. C. W. Laymon.—p. 251.
- Ophthalmic Migraine. W. L. Hoffman.—p. 252.
- Glioma Tumor. J. F. Pohl.—p. 253.
- Management of Aene Vulgaris. H. A. Cumming.—p. 254.
- Resection of Pancreas for Hyperinsulinism Due to Islet Cell Tumors. S. R. Maxeiner.—p. 256.

Journal of the Mount Sinai Hospital, New York

12:1-802 (May-June) 1945. Partial Index

- Diagnostic Difficulties in Uncomplicated Syphilitic Aortitis, with Note on Roentgenkymography of Aorta. S. H. Averlueck.—p. 41.
- Multiple Purulent Arthritis Due to Meningococcus in Very Early Infancy: Report of Case in Infant Suffering from Congenital Cataract and Cardiac Disease Whose Mother Had Rubella During First Month of Pregnancy. M. H. Bass and G. Nothman.—p. 60.
- Arcus Senilis and Arteriosclerosis. E. P. Boas.—p. 79.
- Reliability of Serologic Tests for Syphilis. L. Chargin and C. R. Rein.—p. 111.
- Evaluation of Kenny Treatment of Poliomyelitis. A. E. Fischer.—p. 200.
- Generalized Secondary Amyloidosis: Clinicopathologic Study of 84 Cases. M. Jacobi and H. Grayzel.—p. 339.
- Clinical Significance of Pain in Acute Coronary Occlusion with Myocardial Infarction. M. A. Kugel.—p. 422.
- Description of Epidemic Caused by Salmonella Typhi-Murium and Bacteriology of This Organism. D. H. Ross.—p. 534.
- Dissemination and Control of Meningococcal Infections. E. B. Schoenbach and J. J. Phair.—p. 624.
- Moenckeberg's Sclerosis: Clinical Entity. S. Silbert and H. I. Lippmann.—p. 689.

Journal of National Malaria Society, Tallahassee, Fla.

4:77-150 (June) 1945

- Development and Use of DDT for Control of Mosquitoes. E. F. Knipling.—p. 77.
- Construction and Operation of 4 Inch Hydraulic Dredge for Malaria Control Drainage. L. G. Lencert and W. A. Legwen.—p. 93.
- Report on Use of Diaphragm Pump and Tide Gates on Malaria Control Project at Harvey Point, N. C. R. W. Jones.—p. 99.
- Military Aspects of Malaria Control in Fourth Service Command. S. C. Dews and J. H. Morgan.—p. 105.
- Incidence of Malaria Among Troops in Liberia. L. D. Moore.—p. 109.
- Anopheline Surveys in Fourth Service Command. S. J. Carpenter.—p. 115.
- Directional Mosquito Barrier Trap. W. M. Gordon and E. J. Gerberg.—p. 123.
- Studies on Imported Malaria: I. Ability of Domestic Mosquitoes to Transmit Vivax Malaria of Foreign Origin. M. D. Young, T. H. Stubbs, J. A. Moore and others.—p. 127.
- Use of House Mosquito Proofing as Emergency Malaria Control Measure in the Kentucky Reservoir. C. W. Kruse and F. F. Gartrell.—p. 133.
- Educational Activities as Related to Returning Malaria Carrier Problem. W. S. Boyd.—p. 147.

Domestic Mosquitoes and Transmission of Vivax Malaria of Foreign Origin.—Young and his associates say that in the fall of 1943 the Public Health Service in cooperation with the Army established the Imported Malaria Studies Program. The objectives were: 1. To determine the ability of the imported malaria to infect American anophelines and to be transmitted by them. 2. To gather information on the parasitology and other characteristics, and to distinguish, if possible, between strains. 3. To evaluate the findings and suggest their implications on control measures. This report is the first of a series resulting from these studies and includes work accomplished through Sept. 30, 1944. On the basis of the evidence so far, the following conclusions appear to be justified: 1. Plasmodium vivax malaria contracted by soldiers in foreign countries (South Pacific, Mediterranean and South American areas) which relapses after their return to this country is infective to the native malaria vectors, viz., Anopheles quadrimaculatus Say and Anopheles maculipennis freeborni Aitken. 2. These mosquitoes infected by the imported vivax malaria can transmit the disease by biting a susceptible person. 3. Control measures are as necessary for imported malaria as for native malaria. Military personnel relapsing with imported malaria in an area where malaria vectors are present would offer possibilities for transmission to the population similar to a corresponding number of native malaria cases.

Journal of Urology, Baltimore

53:647-752 (May) 1945

- Effects of Certain Hormones on Renal Function of Man. A. L. Dean, J. C. Abels and H. C. Taylor.—p. 647.
- Occurrence of Sulfide in Renal Calculus. Leona Hudson, Amelia M. Cherkes and K. W. Buchwald.—p. 654.
- Mucinous Carcinoma of Urachus Invading Bladder. J. J. Hayes and A. D. Segal.—p. 659.
- Neurogenic Vesical Dysfunction: Experimental Study. C. E. Jacobson Jr.—p. 670.
- Treatment of Alkaline Incrustations of Urinary Tract with Solution G. C. C. Heger and H. R. Sauer.—p. 696.
- Solution of Incrustations in Urinary Bladder by New Method. E. E. Lins.—p. 702.
- Lipids of Prostatic Fluid, Seminal Plasma and Enlarged Prostate Gland of Man. W. W. Scott.—p. 712.
- Treatment of Rectourethral and Rectovesical Fistula. S. F. Wilhelm.—p. 719.
- Involvement of Genitourinary Tract in Leukemia, with Report of Case of Involvement of Urinary Bladder. C. L. Pentecost and P. Pizzolato.—p. 725.
- Diverticula of Urethra in Women: Review of 12 Cases. C. C. Higgins and E. S. Rambousek.—p. 732.
- Anesthesia for Urologic Patient: Review of 973 Cases. Mary Karp.—p. 740.

Solution G for Alkaline Incrustations of Urinary Tract.—Heger and Sauer studied the effect of solution G (citric acid, magnesium oxide, sodium carbonate and distilled water) on 41 patients. They selected for treatment patients with persistent alkaline infections of the urinary tract, particularly those in whom a tendency to recurrent or continued formation of incrustations or stones was apparent. A three way Foley-Alcock catheter was placed indwelling, and the solution was administered by means of a drip at a rate of from 40 to

60 drops per minute. Continuous drainage was accomplished by allowing the mixture of urine and solution to escape through the return tube of the catheter. It has been advantageous in suitable cases to elevate the tube draining the return fluid 15 to 30 cm. above the symphysis. Thus tidal drainage and periodic distention of the bladder with a mixture of solution G and urine were accomplished. The patient's fluid intake was held at a level of about 3,000 cc. per day, and the amount of solution G used during twenty-four hours was between 3,000 and 4,000 cc. The results were most impressive in patients with incrustated alkaline cystitis and patients with incrustated radium necrosis. Not only will prolonged employment of solution G prevent recurrent formation of calcareous deposits while it is being administered but also it will exert bactericidal effects by changing the alkaline pH of the bladder content to a pH of 4.6 to 4.0. In the majority of cases, one course of treatment lasting from two to four weeks has been sufficient. As a stone dissolving agent the use of solution G is indicated only under certain conditions. It has proved valuable in cases in which formation of kidney stones occurs as a result of infection with urea splitting bacteria. It is possible to dissolve these stones before they become hard or large. If surgical removal of stones from badly infected kidneys is carried out, nephrostomy should be done routinely in order to facilitate postoperative irrigation treatment with solution G. Also in cases of sandlike deposits or multiple stone formation in the kidney pelvis the authors advocate the use of solution G postoperatively to dissolve the remaining stones and to prevent formation of new stones. The indication for use of solution G for the purpose of dissolving bladder stones is a limited one. Since many of these patients require elimination of some form of obstruction, surgical procedures are preferable. The use of solution G should be advocated for patients with alkaline bladder stones who refuse surgery or transurethral manipulations, for patients for whom such procedures are contraindicated and for patients whose bladders are so badly infected that treatment of the infection is desirable before attempts at removal are made.

Kansas Medical Society Journal, Topeka

46:217-252 (July) 1945

- Clinical-Pathologic Study of Erythroblastosis. H. C. Clark.—p. 217.
- Studies on Oral Administration of Penicillin. H. G. Nelson.—p. 224.

Military Surgeon, Washington, D. C.

96:457-554 (June) 1945. Partial Index

- Present Status of Sulfonamides. W. W. Hall.—p. 457.
- Inspection of Canned and Cured Meat and Meat-Food Products. F. C. Waters.—p. 461.
- Eye Replacement by Acrylic Maxillofacial Prosthesis. P. J. Murphey and L. Schlossberg.—p. 469.
- Army's Milk Supply and Problems Incident to Procurement and Inspection. C. J. Babcock.—p. 479.
- Duodenal Ulcer in Large Army Camp: Incidence and Statistical Analysis. H. B. Loder and S. A. Kornblum.—p. 492.
- Psychiatric Studies Based on New Personality Test. A. W. Bortin and I. Brill.—p. 497.
- Pilonidal Cysts: Operative Technic. J. S. Brown Jr.—p. 504.
- Mucocele of Appendix: Case Report. R. C. Giles.—p. 507.
- Intravenous Barbiturates: Aid in Diagnosis and Treatment of Conversion Hysteria and Malingering. D. P. Morris.—p. 509.
- Medical Liaison in the China Theater Before and During Salween Campaign. E. Ouyang.—p. 513.
- Agranulocytosis Caused by Mapharsen and Treated with Sulfadiazine. H. Tarnower.—p. 516.
- Gangrenous Ileocolic Intussusception: Case Report. L. B. Keels.—p. 520.
- Simple Method of Establishing Blood Bank on Ships of Fleet. L. D. Star.—p. 522.
- Nodular Intrathoracic Lesions in Coccidioidomycosis. M. Helper and F. B. Watts.—p. 524.
- Injection Treatment of Sprains. J. H. Nagler.—p. 528.

Agranulocytosis Caused by Oxophenarsine Hydrochloride and Treated with Sulfadiazine.—Tarnower reports a case which indicates that oxophenarsine hydrochloride (mapharsen) is capable of causing agranulocytosis and severe anemia and as such should be administered with special caution to any one sensitive to an arsenical. Sulfadiazine may be administered in the presence of agranulocytosis. The employment of sulfonamides in the treatment of agranulocytosis with the rationale of combating infection until there is a leukocytic regeneration is worthy of further trial.

Nodular Intrathoracic Lesions in Coccidioidomycosis.—The 3 cases reported by Helper and Watts are significant because of the unusual intrathoracic pathologic changes seen seven to thirteen months after the acute phase of coccidioidomycosis had subsided. These cases have in common chest pain as the presenting symptom, a positive skin test for *Coccidioides immitis*, a negative tuberculin test and an intrathoracic mass. In 2 cases the mass was intrapulmonary, in the third probably intrapleural. While the primary pulmonary infection in each of these cases has been overcome, it has left a residual intrathoracic focus which still shows clinical activity, manifested by chest pain, many months later. This symptom is severe enough to prevent these men from doing military duty. The authors conclude that nodular intrathoracic lesions may be a late residual finding in patients who have recovered from acute pulmonary coccidioidomycosis. They stress that late encapsulated coccidioidomycosis must be included in the radiologic differential diagnosis of circumscribed intrathoracic soft tissue lesions.

Minnesota Medicine, St. Paul

28:523-608 (July) 1945

- Complications in Urinary Tract During Pregnancy. W. F. Braasch and R. D. Mussey.—p. 543.
Placenta Accreta in Duplex Uterus Found at Cesarean Section. J. R. Manley.—p. 547.
*Survey of Leptospirosis (Weil's Disease) in Minnesota. A. B. Stavitsky and R. G. Green.—p. 549.
Acute Appendicitis: Study of Cases Admitted to Minneapolis General Hospital Over Five Year Period. J. V. Farkas.—p. 551.
Pulmonary Metastasis of Carcinoma Diagnosed by Bronchoscopy. W. S. Tinney and J. R. McDonald.—p. 554.
Multiple Malignant Argentaffin (or Carcinoid) Tumors of Small Bowel with Disseminated Metastasis. C. E. Watz.—p. 558.
Tumors of Breast. E. T. Bell.—p. 560.
Parenteral Fluid Therapy. R. F. Schmidt and A. H. Wells.—p. 564.

Leptospirosis (Weil's Disease) in Minnesota.—Stavitsky and Green say that despite the apparent increase in leptospirosis in man and animals throughout the United States no cases have been reported from Minnesota. The authors therefore inquired as to the presence or absence of the etiologic agent of leptospirosis, *Leptospira icterohemorrhagiae*, in certain groups of the human and animal population in and around Minneapolis and St. Paul. All tests on human material were negative, but in 4 rats evidence of infection with actively virulent leptospiras was obtained by direct dark field observation and animal inoculations of minced rat kidneys. Evidence of past infection of 3 dogs was secured by means of positive agglutination tests of their serums against *Leptospira icterohemorrhagiae* in significant titers of 1:300, 1:200 and 1:100. Although no evidence of human leptospiral infection has been obtained in this area, human cases might well occur. Only 50 per cent of the cases of Weil's disease present jaundice, while some take the form of a relatively benign meningitis with none of the classic symptoms of leptospirosis other than a positive agglutination test. In the latter type of case ordinary bacteriologic studies usually fail to reveal the presence of the organism, as leptospiras do not grow on ordinary bacteriologic mediums and are not stained by the more commonly used stains.

New England Journal of Medicine, Boston

233:1-24 (July 5) 1945

- Surgical Management of Carcinoma of the Midthoracic Esophagus. R. H. Sweet.—p. 1.
Antithrombotic Action of Gelatin. H. Haimovici and J. Fine.—p. 8.
Gynecology: Carcinoma of the Endometrium. J. V. Meigs.—p. 11.
Fibrosarcoma of Lung (Hypertrophic Osteoarthropathy). A. J. Linenthal.—p. 18.
Bleeding Duodenal Ulcers. G. Marks.—p. 22.

233:29-54 (July 12) 1945

- History of Middlesex North District Medical Society 1844-1944. A. R. Gardner.—p. 29.
Early Rising After Surgical Operations. J. Ashkins.—p. 33.
Present Status of Antimalarial Drugs. L. E. Napier.—p. 38.
Adenocarcinoma of Lung: Severe Pulmonary Osteoarthropathy. J. Lerman.—p. 44.
Portal Cirrhosis of Liver, with Ruptured Esophageal and Gastric Varices. C. M. Jones.—p. 48.

New York State Journal of Medicine, New York

45:1375-1486 (July 1) 1945

- Urology. G. E. Slotkin.—p. 1418.
Public Health, Hygiene and Sanitation. F. E. Coughlin.—p. 1423.
Physical Medicine. W. S. McClellan.—p. 1426.
Dermatology and Syphilology. E. W. Abramowitz.—p. 1429.
Obstetrics. C. J. Marshall.—p. 1432.
Ophthalmology. H. H. Joy.—p. 1434.
History of Medicine. T. W. Clarke.—p. 1436.
Radiology. L. A. Hadley.—p. 1438.
Progress in Study of Experimental Endocarditis. W. J. MacNeal, Anne Blevins, Alice E. Slavkin and Helen Scanlon.—p. 1440.
Toxic Aspects of Digitalis Therapy. W. C. Hueper.—p. 1442.
Interrelationship of Undernutrition, Fatigue and Latent Hepatic Disease in Industrial Worker. A. O. Wilensky.—p. 1447.
Role of Pyruvic Acid in Fatigue. N. Meyer.—p. 1450.
Penicillin Pneumococcal Endocarditis of Infant with Congenital Heart Disease. I. N. Kugelmass.—p. 1460.
Effect of the Blood Sugar on Electroencephalogram. W. Goldfarb.—p. 1460.
Congenital Elevation of Scapulae with Bilateral Omovertebral Bones. R. E. Ingersoll.—p. 1462.

45:1487-1598 (July 15) 1945

- Comparative Study of 800 Temperate and Intemperate Inmates of Penal Institution. P. Wenger.—p. 1531.
Appendicitis: Survey of Last 2,000 Consecutive Cases. H. A. D. O'Connor and E. M. Bessie.—p. 1535.
*Smoking and Tuberculosis. H. F. Schwartz.—p. 1539.
Exophthalmic Goiter: Its Conservative Treatment. I. Bram.—p. 1543.
Treatment of Children with Cerebral Palsy. Veronica O'Brien.—p. 1548.
Peroral Endoscopy: Its Aid to Clinical Diagnosis. D. Ide.—p. 1551.
Plastic Surgery on Axilla in Certain Cases of Persistent Bromidrosis. K. Kahn.—p. 1555.
Fifteen Hundred Consecutive Deliveries of Viable Babies at North Country Community Hospital. R. S. Millen.—p. 1559.
Electroshock Therapy in Pregnant Mental Patients. P. Polatin and P. Hoch.—p. 1562.
Unusual Focal Injury to Spinal Cord. G. D. Nammack and S. Hirsch.—p. 1564.
Unusual Electrocardiographic Finding in Myocardial Infarction. H. L. Jaffe, A. M. Master and H. Kalter.—p. 1565.
Oliguria and Renal Calculus Resulting from Administration of Sulfamerazine. H. Mandelbaum and H. J. Amsterdam.—p. 1568.

Smoking and Tuberculosis.—A questionnaire was sent to 50 sanatorium directors. The answers revealed that 13 considered smoking definitely harmful to tuberculous patients, 36 considered excessive smoking harmful and only 1 considered it not harmful. Only 16 per cent had rules which rigidly forbade the practice. Most of the men permitted smoking in certain cases or ignored the fact that the rules were being broken. This attitude is engendered by the fact that it is difficult to discourage patients from a habit of long standing in return for a benefit which is of questionable value. An examination of the more recent literature leads to the conclusion that since smoking is harmful even to normal persons it is bound to have a deleterious effect on the respiratory tract of the tuberculous. It is felt that the best approach to the problem would be a definite rule forbidding smoking, with frequent explanations about the dangers inherent in the practice.

Ohio State Medical Journal, Columbus

41:613-684 (July) 1945

- Low Back Pain Routine. W. R. Hochwalt, A. E. Culmer Jr. and S. C. Rogers.—p. 613.
Management of Patients with Prostatic Hypertrophy: Review of 214 Cases. C. C. Higgins.—p. 618.
Second Report of Prophylaxis of Post-Tonsillectomy Granulation Oozing. C. A. Campbell.—p. 621.
Erythroblastic Anemia—Mediterranean Disease in an Adult: Report of an Unusual Case. J. T. Read.—p. 623.
Clinical Observations on Use of Cotton as Suture Material. W. P. Kanne and W. E. Smith.—p. 625.
Allergic Manifestations to Sulfamerazine, with 2 Case Reports of Anuria in Children. A. Dintenfuss.—p. 628.
Capillary Fragility and Allied Tests. J. D. Walters.—p. 632.
Thrombosis of Superior Mesenteric Artery. M. E. Green, D. L. Eyer and J. C. Weeter.—p. 634.

Public Health Reports, Washington, D. C.

60:753-788 (July 6) 1945

- *Observations on Use of DDT for Control of *Anopheles Quadrimaculatus*. R. L. Metcalf, A. D. Hess, G. E. Smith, G. M. Jeffery and G. W. Ludwig.—p. 753.

Use of DDT for the Control of *Anopheles Quadrimaculatus*.—Laboratory and field studies were conducted in the Tennessee Valley during 1943 and 1944 to provide information on the use of DDT as a residual house spray for the control of

the adult *Anopheles quadrimaculatus* and on its effectiveness as an anopheline larvicide and adulticide when applied as a dust, a spray or a thermal aerosol. The results of these investigations are summarized by Metcalf and his associates. Laboratory observations of wall board sprayed at rates of 40,200 and 1,000 mg. of DDT per square foot showed that there was no significant difference in the initial toxicity to adult *A. quadrimaculatus* at the different dosages, the percentage of mortality being determined primarily by the period of contact. Residual toxicity, however, was dependent on the rate of application, though not directly proportional to it; sufficient residual toxicity to produce 100 per cent mortality to adults exposed for sixty minutes persisted for four to sixteen weeks, depending on the dosage. Barns treated with DDT at a rate of about 200 mg. of DDT per square foot remained almost entirely free from flies and mosquitoes for at least eleven weeks. Unoccupied houses treated with DDT at a rate of about 250 mg. of DDT per square foot remained toxic to *A. quadrimaculatus* adults for at least fifteen weeks; occupied dwellings lost their toxicity more rapidly than unoccupied houses but remained toxic to *A. quadrimaculatus* for at least three months. Exposure to DDT surfaces completely reversed the normal light reactions of the mosquitoes, making them positively phototropic. Solutions of 2.5 per cent DDT in kerosene gave effective control of anopheline larvae when applied by boat oiling units at rates of approximately $\frac{1}{10}$ pound of DDT per acre, thereby making possible a reduction of about 98 per cent in the amount of kerosene normally used. DDT had to be diluted with 95 per cent of soapstone before a satisfactory airplane dusting mixture was obtained. With this mixture 90 per cent control of *A. quadrimaculatus* larvae was obtained over 200 foot swaths at actual treatment rates as low as $\frac{1}{10}$ pound per acre. Certain polymethylnaphthalenes (Velsicols) having a high solubility for DDT and a high boiling point were found to be ideal solvents for making liquid solutions of DDT to be applied by airplane. DDT dusts and thermal aerosols gave no evidence of injury to fish or other aquatic organisms when applied by airplane at rates of $\frac{1}{10}$ pound of DDT per acre. Five per cent solutions of DDT in kerosene applied at rates of about $\frac{1}{4}$ pound of DDT per acre were quite destructive to aquatic insects living in close contact with the water surface, particularly Hemiptera and Coleoptera.

Review of Gastroenterology, New York

12:175-240 (May-June) 1945

*Two New Tests of Gallbladder Disease for Clinical and Research Use. L. M. Morrison and W. A. Swalm.—p. 175.

*Cholinesterase and Its Correlation with Bowel Movement and Liver Function. R. Bauer.—p. 185.

War Zone Diseases Which Confront Civilian Physician. H. A. Rafsky.—p. 193.

Discovery of Roentgen Rays: Wilhelm Konrad Röntgen, March 27, 1845-February 10, 1923. H. I. Goldstein.—p. 201.

Tests of Gallbladder Disease.—Morrison and Swalm present two new tests for the detection of active gallbladder disease. The first is a surface tension method and the second a specific gravity method. The tests are based on the concentrating function of the gallbladder studied in over 5,000 bile specimens. They are often valuable laboratory adjuncts or alternatives to the cholecystogram in deciding for or against gallbladder surgery. For research purposes the surface tension test can be used to determine the concentration of bile salts in the gallbladder bile from the duodenal drainage bile, by the surface tension or stalagmometric method. The normal gallbladder concentrates between 1,000 and 2,000 mg. of bile salts per hundred cubic centimeters of bile in the gallbladder or the B fraction of the nonsurgical biliary drainage bile. Pathologic gallbladders concentrate less than 1,000 mg. of bile salts per hundred cubic centimeters in the gallbladder or B fraction of the nonsurgical biliary drainage bile. When the gallbladder and liver biles are too mixed to make a separate gallbladder estimation, the pathologic gallbladder can often be detected by its inability to raise the concentration of the bile salts in the combined bile to 300 mg. or more above that in the liver bile alone. The estimate from the gallbladder bile alone is the most accurate and hence preferable. In the presence of functional gallbladder stasis or dyskinesia, when the gallbladder

mucosa is still apparently healthy, the bile salts in the gallbladder rise abnormally high to between 2,000 and 3,000 mg. per hundred cubic centimeters of bile. For practical clinical purposes, the specific gravity test consists in determining the density of the B or gallbladder bile in the nonsurgical biliary drainage, and comparing it with the C or liver bile. The specific gravity of normal gallbladder bile is from 0.005 to 0.050 greater than that of the liver bile. The average specific gravity of the normal B or gallbladder bile in a series of 100 cases with proved normal gallbladders was 0.011 greater than the specific gravity of the C or liver bile in the duodenal drainage. The specific gravity of the B bile from the diseased gallbladder is less than the specific gravity of the liver bile, or equals it, or is not more than 0.004 greater than the specific gravity of the liver C bile.

Correlation of Cholinesterase with Bowel Movement and Liver Function.—The substance released by the vagus following electric stimulation is acetylcholine. Cholinesterase was detected as the ferment which splits acetylcholine and which is present in serum and erythrocytes. The quantitative determination of this ferment, particularly by titration, involves many difficulties. Bauer stresses the importance of the pH and of the temperature. He used the method indicated by Butt and his co-workers. Twenty-seven of 208 cases gave high or low readings. Low values have invariably been found in liver diseases, anemia and debility; high values in endocrine disturbances, especially hyperthyroidism. High readings were also obtained in constipation, nephrosis and endocrine disorders, and low readings in anemia, liver diseases, cachexia and septicemia. Control tests with Hanger's cephalin-cholesterol and R. Bauer's magnesium chloride tests showed that positive flocculation results are not always accompanied by low serum esterase values. A large part of the enzymic action is contained in the red cells. Therefore the ratio of the red cells to serum has to be considered especially with liver diseases. The situation seems to be even more complicated since Mendel and Rodney in 1943 split the ferment into pseudocholinesterase and cholinesterase. The current clinical investigations have been made with the unspecific ferment, the so-called pseudocholinesterase. Current clinical investigations do not give a clear insight into the splitting of acetylcholine.

Southern Medical Journal, Birmingham, Ala.

38:443-504 (July) 1945

Clinical Experiences with Thiouracil. R. O. Muether, D. L. Sexton, W. Macdonald and J. T. Von Bruegg.—p. 443.

Incidence of Esophageal Disease in Negroes. P. P. Vinson.—p. 452.

Complications of Peptic Ulcer. W. B. Marbury and M. L. Goldman.—p. 453.

Postwar Tropical Disease Problems in the United States. F. A. Butler and J. J. Saper.—p. 459.

Use and Abuse of Sulfonamides in Treatment of Skin Diseases. N. Tobias.—p. 467.

*Talcum as an Operating Room Hazard. M. G. Seelig.—p. 470.

Anal Fistula. B. F. Hardin.—p. 472.

Cryptorchism. G. R. Livermore.—p. 477.

Radiation Therapy in Uterine Fibroid. J. D. Peake.—p. 480.

Ectopic Pregnancy. R. Torpin.—p. 485.

Closing Tympanic Membrane Perforations. S. L. Fox.—p. 492.

Transportation of Gonococcus Specimen. Nell Hirschberg.—p. 493.

Talcum as an Operating Room Hazard.—Seelig says that if a surgeon dons a pair of gloves that have been powdered with talcum, rinses them thoroughly and then allows them to dry a few minutes, they will still show a coating of talcum. From 50 to 100 mg. of talcum accumulates in the finger tips, and an accidental rip in a finger causes spillage. The process of powdering produces a deposition of powder on materials and instruments that are later used in the operation. Biopsy specimens from omental tissue of patients who are subjected to a second laparotomy frequently disclose talc crystals and foreign body reactions. These reactions manifest themselves as granulomas and as dense adhesions, particularly in the cranial and abdominal cavities. Microscopically the picture resembles that of tuberculosis, and clinically it not infrequently imposes itself as malignant disease. Investigations to find a substitute for the treacherous talcum powder disclosed that potassium bitartrate (cream of tartar) is suitable, and more recently a special starch powder has been developed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Rheumatic Diseases, London

4:51-70 (March) 1945

- Gout and Its Effect on Cardiovascular System. G. L. Steinberg.—p. 51.
Nerve Symptoms in Vertebral Rheumatism. C. W. Buckley.—p. 54.
Blood Plasma Fibrinogen in Rheumatic and Nonrheumatic Conditions. A. J. Mester.—p. 57.
Rheumatic Disease in Middle East. G. D. Kersley.—p. 60.
"A. C. B. Serum" of Professor Bogomolets in Treatment of Rheumatism. F. Bach.—p. 62.
Pan American League for Study and Control of Rheumatic Diseases. L. T. Swaim.—p. 69.

British Journal of Surgery, London

32:441-550 (April) 1945

- Internal Inguinal Ring. W. J. Lytle.—p. 441.
Some Unusual Thoracic Tumors. N. R. Barrett and W. G. Barnard.—p. 447.
Complications of Acquired Diverticulosis of Jejunum and Ileum. R. M. Walker.—p. 457.
Conservation of Metacarpus by Skin and Bone Grafting in 3 Patients. P. B. Moroney.—p. 464.
Osteomyelitis of Clavicle. Tina Gray.—p. 466.
Obstructive Appendicitis. W. H. Bowen.—p. 468.
*Plasmocytoma of Bone. W. Tennent.—p. 471.
Operative Replacement of Mammary Prominence. H. Gillies.—p. 477.
Malignant Tumors of Small Intestine: Review of Literature and Report of 21 Cases. K. Fraser.—p. 479.
Spontaneous Rupture of Hydronephrosis. R. Reid and W. C. Menzies.—p. 491.
Abnormality of Calcaneus as Cause of Painful Heel: Its Diagnosis and Operative Treatment. A. Fowler and J. F. Philip.—p. 494.
Inguinal Hernia: New Operation, with Special Application to Services. W. V. Beach.—p. 499.
Ulcer of Second Part of Duodenum. P. T. Crymble.—p. 500.
Case of Pseudarthrosis Following Fractures of Lumbar Transverse Processes. G. Hyman.—p. 503.
Actinomycosis from Punch Injuries, with Report of Case Affecting Metacarpal Bone. H. J. Burrows.—p. 506.
Suture of Laceration of Inferior Vena Cava Due to Bomb Splinter. H. A. Kidd.—p. 508.
Volvulus of Small Intestine Due to Meckel's Diverticulum. R. Smith.—p. 510.
Case of Regional Enteritis in Childhood. D. Ebrill.—p. 512.
*Delayed Paraplegia Following Fractures of Vertebrae. L. Rogers.—p. 514.
*Further Observations of Clinical Value of Growth Promoting Substance in Wound Treatment. H. Werner.—p. 518.
Fracture Dislocation of Occipital Bone. S. Taylor.—p. 522.
Ureteric Calculus of Unusual Size. G. Marangos and G. E. Porter.—p. 524.

Plasmocytoma of Bone.—Tennent presents evidence that plasmocytoma of bone forms a distinct clinical picture of a solitary intramedullary neoplasm, remaining strictly localized for several years, but if untreated developing into the fatal condition of multiple myelomatosis. A case conforming to this description is reported in which the primary plasmocytoma remained localized in the right ilium for four and one-half years, with subsequent development of multiple myelomatosis and death five years after the first symptoms. This case illustrates the natural history of the disease in the absence of treatment. Analysis of the 50 recorded cases revealed that 35 involved men and 15 women. The distribution was pelvis 16, femur 12, humerus 9, vertebrae 6, skull 5, tibia 1, clavicle 1. Presenting symptoms were either pain, pathologic fracture or local swelling. When the tumor occurred in a long bone the tendency to pathologic fracture was high. There is difference of opinion regarding the origin and nature of these tumors, but the weight of evidence appears to be in favor of the tumor arising as a variant of the reticulum cell. Treatment consisted in amputation, curettage, high voltage x-rays or radium. Nothing is to be learned as to the relative merits of these methods, owing to the lack of adequate follow-up. The prognosis is less favorable than in osteoclastoma and considerably more favorable than in osteogenic sarcoma.

Delayed Paraplegia Following Fractures of Vertebrae.—Rogers says that when paraplegia complicates a vertebral fracture it is usually a concomitant condition produced at once. Rarely, is the onset of paraplegia delayed. He cites cases in which there was an interval between the injury to the back and the onset of paraplegia. A seaman aged 22 was blown up by a torpedo explosion, walked to the ship's side, clambered

overboard, swam away from the ship and then became paraplegic. A member of the air force injured in a Spitfire crash experienced pain between the shoulders but no other symptoms. Paraplegia developed in forty-eight hours. Another patient had a cycling accident. He walked a mile, then sat down because of pain in the back and was unable to rise because of paraplegia. A girl of 17 was in a bicycle collision with a car. She picked herself up, was taken by car to the doctor's house and walked inside. She then developed numbness and paralysis. In 2 of the described cases the paraplegia was transient, resolving completely in a few days' time. In the other 2 cases it was persistent, and exploration was carried out with improvement in both following the removal of bony encroachment on the spinal canal. In the transient cases delayed paraplegia is probably due either to subpial hemorrhage or to edema, which, when fully established at a varying interval after the injury, is sufficient to impair conduction in the cord. With absorption of the effusion in some twenty-four to forty-eight hours or even longer, conduction is once more restored. Persistent delayed paraplegia is an indication for operation and removal of the bone block produced by displacement of the vertebral fragments.

Growth Promoting Substance in Wound Treatment.—Werner says that since a previous report by Kerr and himself on the clinical value of growth promoting substance a further 44 cases have been treated with heart extract powder. All patients had shown indolence and intractability toward orthodox treatment. The use of tissue extract was confined to wounds which had been treated for a period of at least six weeks unsuccessfully. The majority of the lesions responded favorably to the treatment. Three ulcers and one chronic wound can be classified as failures. The same three groups as previously described were treated: (1) ulcers, (2) wounds by projectiles, (3) burns. Further evidence has been collected about the general action of heart extract powder. It has been applied to one of several coexistent wounds with the result that healing in the treated wound was accompanied by healing in the others. Owing to unforeseen circumstances the treatment with heart extract powder had to be discontinued for a fortnight. The treated wounds responded to this interruption in two ways: In the smaller group healing proceeded satisfactorily, whereas in the major group the condition retrogressed. After the treatment was renewed, the patients who had larger lesions responded to the first application of heart extract powder with protein shock. After several applications this reaction subsided. The fact can be explained in the way that the interruption led to an accumulation of antibodies, so that the individual treated responded with a form of anaphylactic shock. The results in chronic burns justify the trial of heart extract powder on fresh burns.

British Medical Journal, London

1:759-794 (June 2) 1945

- Clinical Features of Poliomyelitis Epidemic in Malta, 1942-1943. T. Agius, A. E. Bartolo, C. Coleiro and H. J. Seddon.—p. 759.
*Acute Anterior Poliomyelitis Among Service Personnel in Malta: Account of an Epidemic. H. G. G. Bernstein, J. M. P. Clark and R. E. Tunbridge.—p. 763.
*Erythrocyte Sedimentation Rate in Infective Hepatitis. J. A. R. Miles.—p. 767.
Necrosis of Liver and Bilateral Massive Suprarenal Hemorrhage in Puerperium. G. H. Dods.—p. 769.
*Mumps Meningoencephalitis and Orchitis. J. P. A. Halcrow and I. Wang.—p. 770.
Diet for Malnourished Prisoners of War. S. Kenny.—p. 777.
Impaired Workers in Industry: American Experience and Successes. H. Levy.—p. 778.

Acute Anterior Poliomyelitis in Malta.—Bernstein and his associates describe clinical and pathologic aspects and treatment of 57 adult patients with anterior poliomyelitis seen among service personnel during the Malta epidemic of 1942-1943. There were eleven deaths. In 2 cases no paralysis was noted. In 26 cases there was no serious final disability. In 14 cases the cranial nerves were involved; in 16 cases there was respiratory paralysis; all deaths resulted from respiratory paralysis despite the use of a mechanical respirator of the Drinker cabinet pattern. Convalescent serum and sulfadiazine were used in a small number of cases without apparent benefit. The onset of the paralysis was often delayed and in a few instances was not apparent until the fifth week.

Erythrocyte Sedimentation Rate in Infective Hepatitis.—Miles followed the erythrocyte sedimentation rate in 80 patients with infective hepatitis throughout their hospital stay. In 40 of the 80 cases the rate was raised above 10 mm. at some stage of the disease, and it was noticed that in these cases the erythrocyte sedimentation rate was low in the acute stage except in a few very mild cases and then became raised as recovery occurred. Estimates revealed that in this series there was a rise in the erythrocyte sedimentation rate as the serum bilirubin fell. There was a strong negative correlation between the height of the erythrocyte sedimentation rate and the serum bilirubin. Evidence has been produced to suggest that an increase in bile salts might cause an inhibition of the erythrocyte sedimentation rate in the acute phase of the disease.

Mumps Meningoencephalitis and Orchitis.—Halcrow and Wang present the case of a soldier aged 26 in whom an almost latent parotitis was followed three days later by a fairly severe orchitis, thirty-six hours after which meningoencephalitis manifested itself. Recovery was complete and rapid. Although the patient had been given sulfadiazine, the authors do not think that it influenced the course of the disease.

Journal of Laryngology and Otology, London

59:374-404 (Oct.) 1944

- Experiences of Bloodless Treatment for Recurrent Paralysis. E. Froeschels.—p. 347.
Contributions to Functional Pathology of Ear: III. Clinical Bearing of Differentiation Between Sensitivity and Efficiency of Ear, with Special Reference to Vestibular Tonus. F. Kobrak.—p. 359.
Disease of Cervical Spine in Laryngologic Practice. M. S. Harrison.—p. 391.

Proceedings of Royal Society of Medicine, London

38:309-398 (May) 1945

- International Sanitary Convention of 1944. P. G. Stock.—p. 309.
Subjective Psychologic Responses of Patients Undergoing Physical Treatment in Mental Disorders: Attempt at Clinical Evaluation. J. Frank.—p. 317.
Vitamin A and the Skin. H. S. Stannus.—p. 337.
Bone Tumors and Their Radiologic Implications. J. L. A. Grout.—p. 345.
Steatorrhea Due to Lymphatic Obstruction. R. S. B. Pearson.—p. 385.

Chinese Medical Journal, Washington, D. C.

62:221-304 (July-Sept.) 1944

- Typhus Fever—Clinical Study of 94 Cases. C. C. Wu and C. Y. Chi.—p. 221.
Weil-Felix Reaction of Men and Rats in Kweichow. H. M. Jettmar and S. Li.—p. 227.
Blood and Urinary Nicotinic Acid in Normal Chinese, Pellagra and Various Pathologic Conditions. H. I. Chu, P. T. Kuo and K. P. Chang.—p. 231.
Urinary Excretion of Nicotinic Acid Among Normal Chinese, Pellagrins and Other Patients. H. C. Hou and M. Y. Dju.—p. 246.
Studies on Susceptibility of Shanghai Mosquitoes to Experimental Infection with *Microfilaria Malayi* Brug. VII. *Culex Fuscans* Weidemann. S. M. K. Hu.—p. 255.
Fibrinolytic Activity of Hemolytic *Streptococci* in Relation to Their Serologic Grouping. C. J. Wu.—p. 260.
Germicidal Power of Garlic. C. L. Chu and S. E. Pai.—p. 267.
Lobar Pneumonia in Children, with Special Reference to Treatment: Clinical Analysis of 105 Cases. T. F. Su and B. C. Lee.—p. 270.
Localized Leishmaniasis of Lymph Glands. H. L. Chung, with a note by V. T. Lieu.—p. 284.

Treatment of Lobar Pneumonia in Children.—According to Su and Lee, lobar pneumonia is common among Shanghai children. The 105 cases reviewed occurred among 2,745 hospital admissions between February 1938 and March 1941, giving an incidence of 3.83 per cent. There was a seasonal increase in December, and the highest peak was reached in February and March. Forty of the children were less than 2 years old. Seventy per cent of the patients were boys. Thirteen of the 105 patients died, 6 of them within twenty-four hours of hospitalization. Studies were made on 56 patients who were treated with sulfonamide derivatives and 39 who received no chemotherapy. Sulfapyridine was used in 40 cases and was found to shorten the fever period, but the incidence of toxic reaction was fairly high. Sulfathiazole showed a good result in 5 cases so treated, and the incidence of its toxic reactions was less frequent.

Archives des Maladies Professionnelles, Paris

6:61-124 (No. 3) 1944-1945

- Question of Pneumoconiosis from Lignite. A. Policard, A. Hanaut and Leroy.—p. 61.
Results of Roentgenologic Investigations on Miners in the Loire Basin. E. Martin and L. Roche.—p. 67.
Tuberculosis and Occupations. J. Troisier, G. Poix and H. Bour.—p. 70.
Draft for Radiologic Terminology for Classification of Silicotic Pneumoconiosis. M. Eck and A. Hanaut.—p. 74.
Fatigue and Wear in Man. Gaufreret.—p. 79.
Physiopathologic Bases of Therapy of Lead Poisoning. L. Dérobert.—p. 84.
*Glass Fiber: Pathology and Hygiene of Workshops. J. Champeix.—p. 91.

Hygiene of Workshops Handling Glass Fiber.—Champeix says that to the long list of insulating materials there has been added in France during the last ten years a heat resisting substance of a glass fiber base. Whereas formerly heat insulators were mostly of an asbestos base, glass fiber is used now more and more. Manifestations of mechanical irritation were observed. They consisted of cutaneous erythema with pruritus, blepharitis and rhinopharyngeal irritation. Neither clinical nor roentgenologic observation disclosed pulmonary changes, but the glass fiber had been used by these workers for only six months and, even if danger of silicosis existed, several years would have to elapse for pulmonary changes to be roentgenologically perceptible. The weaving of glass fiber is not so much harmful as annoying to the workers, because of the almost incessant pruritus caused by the glass dust. He recommends a number of protective measures, such as catching the glass dust at the level of the loom so as to avoid its dissemination, good ventilation of the work shop, individual dressing rooms so that every worker can completely change his clothing before and after work because the dust of glass fiber passes through ordinary clothing and the wearing of tightly woven work clothing so as to avoid as much as possible the penetration of the glass fiber. Shower baths should be provided for the workers at the end of their working time so that they can clean their body from the glass fibers that have penetrated the clothing. The parts of the body not protected by clothing should be coated with soothing ointments, before and after work, to attenuate if not prevent the pruritus. Eating in the workshop should be prohibited. When workmen are engaged for working with glass fiber they should be subjected to a medical examination so as to avoid those with cutaneous and pulmonary lesions. Those working with glass fiber should be periodically examined.

Nordisk Medicin, Stockholm

24:2121-2160 (Dec. 1) 1944

- *Minimum Amount of Liver Extract in Maintenance Treatment of Pernicious Anemia and Complications Due to Treatment. J. Waldenström.—p. 2121.

Hospitalstidende

- Brachialgia and Cervical Spondylosis. M. Lund.—p. 2127.
Protracted Treatment with Diethylstilbestrol. K. Biering-Sørensen.—p. 2131.

Finska läkaresällskapets handlingar

- White Blood Picture During War: Preliminary Report. G. F. Saltzman.—p. 2133.

Hygiea

- Tissue Changes in Not Viable Infants After So-Called Shock Doses of Vitamin D. T. Johansson and A. Wilton.—p. 2139.
Two Cases of Bronchoclerosis (So-Called Valvular Stenosis). A. Gunther.—p. 2146.

Liver Extract in Pernicious Anemia.—Waldenström says that treatment with injections of liver extract can be carried out on a large scale with excellent results at a minimum cost. Of his present 160 patients with pernicious anemia 103 have been treated for at least four years with an average number of 5.3 injections annually for men and 5.1 for women with an annual cost varying from 18 to 42 Swedish kronor. The average number of erythrocytes maintained was 4.1 million for men, 4 million for women. Five patients were given liver preparations orally because of severe reactions to several brands of liver extract. Reactions which occurred in 17 of the 160 cases were usually overcome by injection of a different preparation.

Book Notices

Clinical Traumatic Surgery. By John J. Moorhead, B.S., M.D., D.Sc. Cloth. Price, \$10. Pp. 747, with 500 illustrations. Philadelphia & London: W. B. Saunders Company, 1945.

In his book the author has summed up his vast experience in the field of occupational accidents as the medical director of the New York Transit System. His participation in World War I and the professional care of the victims of the memorable Pearl Harbor attack entitle him also to speak authoritatively on war injuries. Long teaching experience helped him to avoid confusing lengthy discussions and to recommend therapeutic measures characterized by safety and simplicity. The subject is discussed in a simple, concise and lucid manner.

Special chapters cover regional traumatology, such as treatment of the wounds of the hand and injuries of the head, chest and abdomen. As could be expected, considerable space is given to the treatment of fractures. Special sections cover the medico-legal aspect of traumatic surgery, compensation problems and allied subjects. Traumatic neuroses are discussed in a separate chapter. The text is profusely illustrated with adequate drawings and reproductions.

As the author states in the preface, the average reader seeks the opinion of the writer and therefore bibliographic references have been omitted.

One may not share the author's choice of "I. S. Solution," made up of tincture of iodine and sterile saline solution for the treatment of infected wounds. "Intraclavicular dislocations of shoulder" (p. 309, fig. 143) is bad terminology because the prefix "intra" means "within" and not "median to"; obviously the dislocated head of the humerus cannot be found within the clavicle. The author speaks of Dupuytren's contractions; the term "contracture" is commonly used because it implies that the condition is permanent, while "contraction" indicates a condition of short duration. The heading "Fractions of the Spine" (p. 392) is evidently a typographic error. On page 474, eighth line from the top, the author recommends flexion and adduction of the wrist in order to reduce Colles' fracture. However, ulnar deviation is called abduction and not adduction.

Such minor errors do not detract from the value of the book, which represents a veritable mine of information valuable to a specialist as well as to a general practitioner dealing with injury cases. It is amazing that such an enormous amount of material could be covered in one volume.

Fundamentals of Pharmacology. By Clinton H. Thienes, M.D., Ph.D., Professor and Head of the Department of Pharmacology, School of Medicine, University of Southern California, Los Angeles, Calif. Medical Students Series. Cloth. Price, \$5.75. Pp. 497, with 36 illustrations. New York & London: Paul B. Hoeber, Inc., 1945.

To write a concise and comprehensive textbook on the fundamentals of pharmacology which will meet the needs of both students and practitioners and at the same time stimulate the interest of investigators is not an easy task. Dr. Thienes has written a book to meet these requirements. The book is divided into twelve sections, beginning with the systematically acting drugs the effects of which are better understood. Central nervous stimulants and depressants, drugs acting on the peripheral nervous system, drugs acting on the muscles and diuretics occupy the first half of the book. This is followed by anti-parasitic drugs, hormones, minerals, tissue extracts and vitamins. Expectorants, emetics and cathartics are included in the section on drugs used because of local action on body surfaces. Chemical diagnostic agents and actions of drugs on cells are treated in two separate sections. Pharmacy and prescription writing form the last section of the book. The chapters on anesthetics and actions of drugs on cells are well written. The discussion on cellular structure and metabolism in the light of recent knowledge of enzyme systems and the discussion on quantitative pharmacology in relationships between drugs and cells and in terms of biologic variation are not usually given in general textbooks on pharmacology. In chapters on sympa-

thomimetic and parasympathomimetic drugs there is no mention of the classification of these autonomic drugs based on adrenergic and cholinergic innervations as advocated by recent investigators. Each drug is presented uniformly throughout the text in the following sequence: sources, chemical nature, preparations, dose, absorption, distribution, fate, excretion, pharmacodynamic effects, toxicology and therapeutic uses. A few important references are given at the end of each chapter.

The book is clearly written and up to date. Some of the recent medicinal agents included in the text are propadrine and other synthetic sympathomimetic drugs, dicumarol and penicillin. The revival of interest in curare and veratrine as therapeutic agents is mentioned. Some of the features that will appeal to medical students are the brief introduction at the beginning of each section, the uniform procedure in the exposition of each drug and the differential analyses of drug actions. The author's emphasis on rational therapy and his discussion of empirical medicine are of special value to practitioners. His critical discussion of controversial topics is another good feature. The text serves well to introduce students to the essentials of pharmacology and to lead them to more comprehensive treatises for details. Practitioners and others will be benefited from it for a quick review of the subject and for a glimpse of the recent advances in the field of pharmacology.

Temas de cirugía de urgencia. Tomo I. Por P. Larghero Ybarz, profesor de patología quirúrgica, cirujano de urgencia de los Hospitales Maciel y Pasteur. Laboratorio de la Cátedra de patología quirúrgica (primer curso), Facultad de medicina de la Universidad de la R. O. del Uruguay. Paper. Pp. 324, with illustrations. Montevideo: Libreros Editores: A Monteverde y Cia "Palacio del Libro," 1944.

The author, in writing this book on first aid, has used to good purpose the experience obtained as surgeon, for a number of years in two Montevideo hospitals. It is not, however, a general handbook on the subject but an excellent and occasionally overlong review of some of the most difficult problems he has faced, with representative case reports, tables of results and some fine illustrations. The subjects discussed are gastro-duodenal hemorrhages, abdominal wounds, water balance in serious cranial trauma, bronchopulmonary complications in emergency operations, diagnosis of acute appendicitis, peritonitis in typhoid and suppurative mesenteric adenitis. The pathologic picture is invariably emphasized but also related to the clinical and other data.

An Introduction to Medical Science. By William Boyd, M.D., M.R.C.P., F.R.C.P., Professor of Pathology and Bacteriology in the University of Toronto, Toronto, Canada. Third edition. Cloth. Price, \$3.50. Pp. 366, with 126 illustrations. Philadelphia: Lea & Febiger, 1945.

This book is designed for nurses at the beginning of their professional careers. It aims to be a general introduction to the study of disease. The first portion of the book deals with general principles, including a chapter on the living body and one on the nature and cause of disease. The second portion deals with the organs and their diseases, namely diseases of the heart, diseases of the lungs, diseases of the urinary system and the like. The final chapter is on practical applications—the prevention of disease, the principles of the treatment, the nurses of the laboratory. The author is a well known pathologist, and the book should be extremely useful for the purpose for which it is intended.

Los grandes síntomas y síndromes: Síntesis de terapéutica clínica. Por Ambrosio Nijensohn. Paper. Pp. 366. Buenos Aires: "El Ateneo," 1944.

An effort has been made throughout this monograph to live up to its subtitle of synthesis of clinical therapeutics and furnish in a condensed form the accepted treatment for the different conditions described. After a short sketch of the situation, the proper care is prescribed. The real novelty is that the measures advised are based on the most striking symptom or syndrome facing the physician when he first sees the patient. This by itself limits the field embraced. The different conditions are grouped, as gastrointestinal, respiratory, spleen, glands, nerves, skin and general. All are discussed sensibly and clearly, based on common sense, experience and knowledge.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TREATMENT OF HERNIATED INTERVERTEBRAL DISK

To the Editor:—Is there a definite indication for operation in herniated intervertebral disk or does conservative treatment really cure the condition? The concert of present day opinion on the subject shows the most dissimilar chords. There are those to whom any sore back with sciatica is a herniated intervertebral disk, and there are those who take pains in reaching such a diagnosis. In the latter group belong Philip Lewin (Backache and Sciatic Neuritis, Philadelphia, Lea & Febiger, 1943), Bernard I. Comroe (Arthritis and Allied Conditions, ed. 3, Philadelphia, Lea & Febiger, 1945), J. Jay Keegan (The Journal, Dec. 2, 1944, p. 868) and John J. Moorhead (S. Clin. North America 24: 467 [April] 1944). These authors agree that several diagnostic procedures and signs will indicate a herniated intervertebral disk, but not one of them is sufficiently sure in his diagnosis to permit operation. They recommend months of conservative treatment: strapping, plaster, heat, massage and traction. If the patient is not improved after months of conservative treatment, an operation is recommended. It does not seem very scientific and efficient to exhaust a patient's material means, time and patience with procedures of uncertain effect and then, if necessary, operate on him. It should be possible to determine the 10 per cent who are not going to be improved by conservative treatment at the first examination. It does not seem very logical that a once ruptured intervertebral disk should be completely cured by conservative measures. No observations have been published on the later fate of conservatively treated ruptured disks. I wonder if the patient's life will not be marked by terror and a steady caution in fear of recurrence, and thereby invalidity. The reason given for such over-conservatism is that the results of some surgeons are not always good. If we point to the older series of Love and Walsh with its splendid results, then we may come to the conclusion that perhaps some operative minded neurosurgeons do not differentiate strictly enough between a herniated disk and Steindler's posterior division syndrome, and between a disk, a local fibrositis and plain hysteria. If the diagnostic zeal of the conservative group could be followed by prompt operation, and if the operative zeal of the surgical minded group could be supplemented by more careful selection of cases and accurate differential diagnosis, the patient might be better served.

George Vash, M.D., Philippi, W. Va.

ANSWER.—Whether one should promptly resort to surgery in treating a patient diagnosed as having a protruded intervertebral disk or whether the treatment should be conservative with rest, traction and heat is a question with many angles. The clearest cases of protruded intervertebral disk which warrant surgery are fairly typical. The patient is usually a man from 20 to 40 years of age, with a history of sudden onset of backache, usually incident to a strain or fall. There is commonly associated sciatic pain radiating down one leg accompanied by a tilt of the body usually away from the affected side and a prominence of the iliac crest on the affected side—a condition spoken of as sciatic scoliosis. If, in addition, there are neurologic findings such as a diminished or absent achilles tendon jerk and anesthesia over a nerve root distribution, the diagnosis is pretty certain. If, with the symptoms mentioned, there is also a positive spinogram, there is no reason why surgery should not be undertaken even though there has been no previous attack. Although some surgeons say that a spinogram is not necessary, it is better that one be made in each case because spinal cord tumors can and do exist, and the use of such a valuable aid as a spinogram should not be neglected to assist in the differential diagnosis. Such conditions in the past were thought to be due to sacroiliac arthritis and were treated as such. Patients often had recurrences over many years, and too often atrophy of the leg and even some paralysis were residual. Many patients who have protruded intervertebral disks involve compensation; that often casts a shadow over recovery. In this type of surgery it is much to be desired that the patient understand the situation and accept the operation without any pressure from the surgeon.

SLIPPING AND LOCKING OF JOINTS

To the Editor:—A woman aged 51 has joints that tend to slip and lock. She has several in the spine, in the fingers and in the knees. When the joints lock there is extreme pain. The patient had a fibroid tumor, which was successfully removed. All bodily functions are normal and she is perfectly healthy otherwise.

M.D., Illinois.

ANSWER.—Without a more detailed history and record of more complete physical findings, it is possible only to hazard a few opinions with regard to diagnosis or treatment. A history of slipping and locking in the fingers suggests tendonitis.

The classic snapping finger is usually misunderstood by those who have not seen a number of these and is thought to be due to subluxation with locking in the joints. Tendonitis, which produces this condition, may involve only one or a number of digits. Subluxation of multiple joints would be extremely rare. A sensation of slipping followed by locking in the knee is most often the result of partial to complete dislocation of the patella. Somewhat similar symptoms may be produced by internal derangement of the knee due to the presence of osteocartilaginous loose bodies, hypermobile semilunar cartilages or actually torn and displaced semilunar cartilages. Recurrent subluxation or dislocations within the spine occur only in the posterior articular facets. The weight bearing vertebral bodies can be displaced one from the other only as a result of extreme violence or following separation of the isthmus, creating a spondylolisthesis. When such dislocations do occur they can rarely be replaced. Abnormal ranges of motion between the joint surfaces of the posterior articular facets due to over-relaxed joint capsules or ligaments may permit impingement on a posterior nerve root. When this root is traumatized, the patient experiences pain along the distribution of the nerve fibers. A reactive muscle spasm of the sacrospinalis muscle group may be painful and produce scoliosis, which persists until the muscle spasm can be relieved. Intervertebral disks have been shown to bulge, intermittently after a partial tear of the posterior portion of the annulus fibrosus. Each such protrusion of the disk may pinch a posterior nerve root against the bone of one of the appendages of the spine, causing pain, muscle spasm and scoliosis. A complete study of this patient from the standpoint of history and physical findings carried out by an orthopedic specialist will probably be required if an accurate diagnosis is to be made or effective treatment is to be prescribed.

MUSCLE ATROPHY AND SCAR FORMATION FOLLOWING COMPOUND FRACTURE

To the Editor:—A patient has a healed compound fracture of the upper third of the femur. He can straighten the leg on the thigh but can flex it not more than 15 degrees. The quadriceps is greatly shrunken. The probable diagnosis is that the muscles are caught in the healed bone lesion with scar formation near the fractured area. I am considering cutting down on this, and if a cicatrix is found I expect to excise it. What is usually found in such cases and what should be done? If the diagnosis is correct and the scar is excised, will a fascial transplant be required to prevent the occurrence of fixation?

Coleman G. Buford, M.D., Elizabeth, Ill.

ANSWER.—It seems remarkable that the patient can fully extend the leg on the thigh with an atrophic quadriceps and a possible scar inclusion. Presumably some of the fibers of the quadriceps have escaped damage or adherence. It may be possible in an ischemic field to excise the scar and adherence and close up the muscle fibers. This would not be a guaranty against a readherence to the bone or periosteum and it would be wise to make a fascial transplant of sufficient area, with adherent fat surface to be turned up beneath the repaired muscle, with the fascial surface against the bone. Early active use of the muscle should then be encouraged after wound healing. A most careful hemostasis is required in this procedure to prevent formation of a hematoma.

SANITATION OF HOSPITAL FLOORS—PREVENTION OF FUNGUS INFECTIONS

To the Editor:—I should like to know the modern and efficient method in vogue in hospitals for the sanitary care of ward floors, toilets and bathrooms. Is it necessary to mop the floors and wash the toilets in wards where patients are incontinent, urinate and defecate on the floors with such drugs as cresol solution or is soap and water all that is necessary? What is the proper prevention of fungous infections of the feet? Will mopping the floors of the wards and bathrooms with such antiseptics as cresol be a preventive or should a 1 per cent solution of sodium hypochlorite be used before and after bathing?

M.D., Tennessee.

ANSWER.—As a general policy the use of cresol solutions on bathroom and latrine floors which become soiled by urine and feces is not recommended. Adequate scrubbing with soap and water and thorough flushing with clean water, under pressure when necessary, is sufficient. If desired, the floor may be "freshened" by flooding with a chlorine solution after cleaning with soap and water. For this purpose 1 ounce of calcium hypochlorite (70 per cent available chlorine) or 2 ounces of chlorinated lime (35 per cent available chlorine) in 5 gallons of water allowed to stand ten to fifteen minutes before flushing off with fresh water is adequate.

With regard to the prevention of fungous infections of the feet, the following extract from the *Bulletin of the U. S. Army*

Medical Department, November 1944, is quoted: "Recent studies on the use of hypochlorite solutions for the prophylaxis of 'athlete's foot' have thrown doubt on the effectiveness of this method of control. The consensus is that hypochlorite foot bath solutions are not effective in the prevention of spread of dermatophytosis. Their failure to prevent spread of fungous infections has been attributed to various factors inherent in chlorine solutions. Of chief importance among these factors are the variable rate of decrease in concentration and limitation of range of effective fungicidal concentrations. The former factor is more or less common to all foot bath solutions; the latter is peculiar to chlorine solutions. Limitation of range of effective fungicidal concentration is due to the following features: 1. Hypochlorous acid, the active fungicide, is not formed in effective amounts above pH 8. 2. Strong solutions of calcium or sodium hypochlorite yielding 1,000 parts per million of free chlorine have a pH above 8 and are too alkaline to form effective amounts of the active fungicide. While the use of this concentration would be practicable as regards maintenance, it would be ineffective as a fungicide. 3. Although dilution of hypochlorite solution produces greater dissociation, a lower pH and more of the active fungicide, an effectively low concentration yielding 100 parts per million of free chlorine would require replenishment hourly when used by as few as fifteen men. The use of this concentration is therefore impracticable. It seems probable that any foot bath solution would be ineffective for the following reasons: 1. Even if foot baths killed all the free spores, a certain proportion of spores are encased in the keratin of epidermal scales. 2. Any solution which would dissolve keratin rapidly enough to be effective in killing keratin-encased spores in a foot bath would also dissolve the horny layer of the sole and produce a severe dermatitis. 3. The spores which are keratin encased are tracked on to floors adjacent to foot baths, subsequently become freed from the scales, sporulate and then serve as the main source of reinfection. It is therefore suggested that emphasis be placed on the following mechanical methods of prophylaxis: 1. Flushing of shower room and barracks floors with water under pressure. 2. Scrubbing of floors with brush and detergents. 3. Exposure of flooring or duckboards, when practicable, to direct unfiltered sunlight after application of the methods described in 1 and 2. It is believed that more progress will be made in the reduction of athlete's foot by these means than by the use of foot baths."

ARMY USE OF SALTPETER

To the Editor:—It has been repeatedly called to my attention that the Army puts certain chemicals in the food, probably some potassium salt, which greatly reduces sexual desire and the number of erections. I have been unable to learn anything definite about this. However, since being a patient here and eating away from home for a few weeks, I find that is definitely the condition in myself. Perhaps this is all psychic, but it has never occurred to me before and there is no physical reason for it now. Is this assumption correct, and if so what preparation is used? Is there such a drug that can be used without permanent harm to the individual?

Lieutenant (MC), U.S.N.R.

ANSWER:—Saltpeter is used and has been used for years in curing most meats for both civilian and military use. The amounts used and the reasons for its use by the Army are identical with the use to which it is put in food for civilian consumption. Medicinally the uses of this chemical are identical with those of the best of civilian medical practice. Saltpeter is not used by the Army for its popularly reputed anaphrodisiac action—a reputation not justified by the facts in nontoxic doses.

MALARIA

To the Editor:—Can the parasites of malaria be detected in a blood smear when the patient is taking atabrine? I have in mind an army officer who has just returned from eighteen months in the Philippine Islands and who has been taking the usual daily army preventive doses. Can malaria be diagnosed and treated without allowing the patient to stop atabrine?

Robert R. Snook, M.D., Manhattan, Kan.

ANSWER:—In order to determine whether cure has taken place, it is always necessary to remove the drug. If a patient is taking atabrine constantly it is practically impossible to demonstrate any parasite in the blood smear. In order to establish positive diagnosis, it is necessary to take from the patient all antimalarial drugs. It is probably preferable to remove all suppressive medication and treat the attacks as they occur. This point, however, is not established.

EMBALMING OF BODIES

To the Editor:—What are the usual components of the common embalming fluids and in what proportion are they used? What quantity of the embalming fluid is used? Is it necessary to use two or more kinds of embalming fluid? Are there any good books on embalming? Those by Charles A. Renaud and C. F. Callaway do not mention the composition of the embalming fluids. Who performs the embalming work in the United States? Is it well considered and ethical in the United States for physicians to do this type of work?

M.D., Cuba.

ANSWER:—The composition of modern embalming fluids varies greatly. Most of these fluids are dispensed in a concentrated form and the manufacturer furnishes directions for dilution. The formulas are trade secrets. The main purpose of an embalming fluid is to preserve and disinfect the tissues; hence the diluted fluid injected into the body must have sufficient strength to be a disinfectant. The basis of most embalming fluids is solution of formaldehyde, ethyl alcohol, glycerin and certain inorganic salts. Approximately a 5 per cent concentration of the first three ingredients makes a suitable fluid, although many other factors must be considered: Solution of formaldehyde disinfects and preserves. It hardens the tissues and contracts the capillaries but lacks penetrating power; hence it alone is not a good fluid for embalming. To overcome the hardening action of formaldehyde, glycerin is added; this renders the tissues soft and pliable and allows the capillaries to expand on injection. The penetrating power is increased by the addition of ethyl alcohol, which enables the formaldehyde solution to penetrate much farther into the tissues than if injected alone. These three substances, formaldehyde, alcohol and glycerin, are sufficient for preserving and disinfecting. However, their combination and use have many difficulties; for this reason most manufacturers have added other materials to aid the disinfection and preservation of the general appearance of the body. In recent years certain organic compounds known as glycols have been employed as substitutes for glycerin and alcohol. These compounds are good penetrating agents and many of them have antiseptic properties.

For proper drainage and good embalming, a fluid must contain certain inorganic salts to give the final diluted embalming fluid an osmotic pressure corresponding to that of the blood. Such a solution will prevent hemolysis of the red blood corpuscles, thus preventing further staining of the tissue. It will also assist in the removal of blood pigments and other blood residues. For this reason inorganic salts, especially sodium chloride, are added to embalming fluids. Many chemical materials may be used in embalming fluids in addition to the ones mentioned. Saltpeter, benzoic acid, sodium benzoate, salicylic acid, sodium salicylate, borax and many other compounds are used.

The quantity of the embalming fluid varies and depends on the blood removed for the natural lifelike appearance of the individual. The cause of death, duration of the illness, pathologic conditions, medicines administered, condition of the tissues as to moisture content, climatic conditions and the interval between death and embalming play an important part as to the quantity of fluid used. An average of 2 to 3 gallons of diluted embalming fluid is used for the average case.

In modern embalming two types of embalming fluids are used, one for the arterial work as described and one for the treatment of the visceral organs. The cavity fluid differs from the arterial fluid in that it contains a greater concentration of formaldehyde. In the average body 16 ounces of the cavity fluid is used as a direct injection by means of a trocar into the visceral organs. Hollow visceral organs are aspirated before cavity fluid is injected. The arterial fluid may be used for the injection of the visceral organs, but this is not recommended.

Apparently embalming textbooks do not give the composition of embalming fluids. The following textbooks may be obtained relative to this subject:

Outline of Chemistry, R. P. MacFate, Ph.D., Worsham College of Mortuary Science.
Principles of Embalming, R. G. Reichle, B.S., Worsham College of Mortuary Science.
Chemistry of Embalming Fluids, Simon Mendelssohn, Cincinnati.

In the United States embalming is done by licensed embalmers. Each state requires, by statute, certain qualifications before an applicant is eligible to receive an embalmer's license. In the United States if a physician wished to practice embalming and funeral directing it is necessary to fulfil such requirements before being permitted by law to do so. The law, however, does not apply to the preparation of anatomic material for use in medical colleges.

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ORAL PENICILLIN

MAXWELL FINLAND, M.D.

MANSON MEADS, M.D.

AND

EDWIN M. ORY, M.D.

WITH THE TECHNICAL ASSISTANCE OF CLARE WILCOX
BOSTON

The early studies on the absorption of penicillin indicated that most of an orally administered dose is probably destroyed by the acidity of the normal stomach. Nevertheless, the small amounts recovered from the urine and the demonstration of activity in the serum suggested that some absorption does take place.¹ When, more recently, doses of 100,000 units were given on an empty stomach, the amounts excreted in the urine were the same as or larger than the quantities usually given in a single intramuscular injection,² suggesting that the oral method is feasible if larger doses are used. A number of antacids, buffers, capsules and oils have been used in attempts to protect the penicillin from the acidity of the stomach. These, as well as substances intended to increase absorption, have given conflicting results.³ Almost all workers found wide variations in absorption by different persons. Although some have suggested that the use of one or another of the adjuvants with oral penicillin resulted in absorption of amounts approximating those obtained from similar doses given intramuscularly, most of them found that from two and one-half to five times as much penicillin is required when given by mouth. In persons with achlorhydria there is more complete absorption from the stomach.⁴ Some of the recent studies have also indicated that, when a dose is given after a meal, lower serum levels are obtained and less penicillin is recovered from the urine

than when the same dose is given before a meal.⁵ Preliminary clinical trials in small numbers of cases of pneumonia⁶ and in gonococcal and other miscellaneous infections⁷ have suggested that oral therapy may be feasible.

In this paper are presented the results of a study of the effective absorption of penicillin after oral administration as indicated by the levels in the serum. Several preparations were compared in single doses in the same individuals, both normal persons and persons with achlorhydria. The results of a preliminary clinical trial in patients with acute gonorrhea and with pneumococcal pneumonia will also be summarized.

MATERIALS AND METHODS

The subjects used as controls in this study were members of the laboratory staff. One of them (subject D) had a history of peptic ulcer and had gastric hyperacidity and hypermotility. The achlorhydric subjects were patients with pernicious anemia who were in various stages of remission induced by active anti-anemia substances. The penicillin was taken either one-half hour before or after breakfast was started. Blood was drawn at one-half, one, two, three and four hours after a dose or at other intervals when indicated. Serum levels were done by the serial dilution method of Rammelkamp⁸ using the same strain of hemolytic streptococcus, No. 98, but with human group O cells as an indicator to avoid heterogenous hemolysis. The smallest amount of penicillin detected when 0.5 cc. of serum was added to 0.5 cc. of the culture was 0.0156 unit per cubic centimeter (recorded for brevity as 0.02 unit per cubic centimeter). When 0.2 cc. of serum was used, the smallest amount detected was approximately 0.03 unit per cubic centimeter.

The oral preparations were supplied by Lederle Laboratories, Inc., Hoffman-LaRoche, Inc., and Commercial Solvents Corporation. A small supply of commercial penicillin sodium for use with aluminum hydroxide gel (Creamalin) was supplied by the Winthrop Chemical Company. Capsule A contained 15,000 units of crude calcium penicillin mixed with shellac, beeswax and cottonseed oil. Powder A was the crude penicillin powder used to make capsule A. Capsule B contained 25,000 units of calcium penicillin in corn oil. Tablet C contained 30,000 units of calcium penicillin with a highly soluble binder. Capsule D con-

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital and the Department of Medicine, Harvard Medical School.

1. Abraham, E. P.; Florey, H. W.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G., and Jennings, M. A.: Further Observations on Penicillin, *Lancet* 2:177 (Aug. 16) 1941. Florey, M. E., and Florey, H. W.: General and Local Administration of Penicillin, *ibid.* 1:387 (March 27) 1943. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion, and Distribution of Penicillin, *J. Clin. Investigation* 22:425 (May) 1943.

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tained 25,000 units of sodium penicillin. The two latter preparations each contained a buffer and other solids, the nature of which the makers prefer to keep as a trade secret. Aluminum hydroxide gel was used by mixing three parts with two parts of the saline solution of penicillin, the latter containing 5,000 units per cubic centimeter.

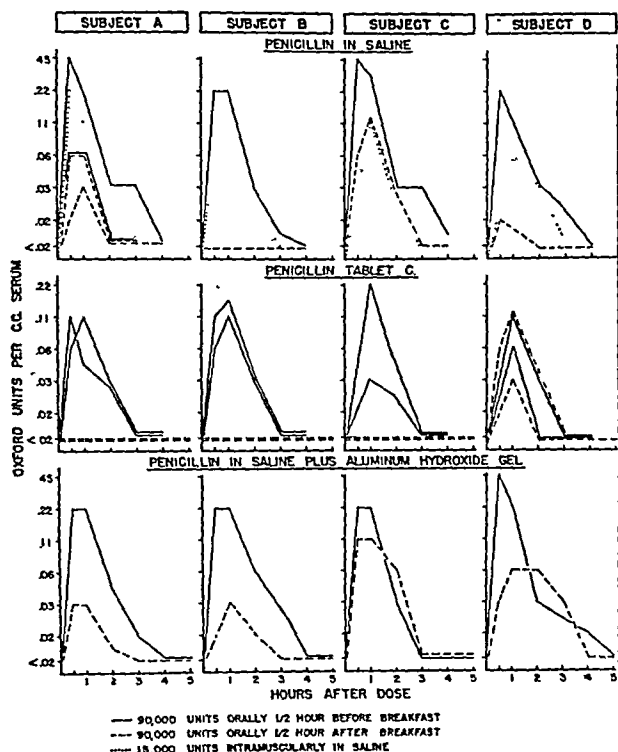


Chart 1—Serum levels after single 90,000 unit doses of penicillin given orally before and after breakfast in 4 normal subjects. Comparison with 15,000 units given intramuscularly.

The pneumonia patients treated were routine admissions to the medical wards. The patients were selected because they were acutely ill, had the typical clinical picture of lobar pneumonia and had previously received neither penicillin nor sulfonamide drugs, and typable pneumococci were found in characteristic sputum. The cases of acute gonorrhea were ambulatory and were treated in the outpatient clinic. They all had the typical clinical picture, and positive smears and cultures were obtained from the exudate before treatment. Most of the strains of gonococci were sulfonamide resistant. Whenever possible, the smears and cultures were repeated after the course of treatment was completed, that is, before the patient left the clinic, and again on the following day and at weekly intervals for three weeks before they were discharged as cured. Unfortunately, some of the patients did not have the complete follow-up. Prostatic secretions were obtained by massage from the male patients in whom there was no further urethral exudate.⁹ Patients who had positive smears on the day after treatment or within three weeks were considered as failures and were retreated with intramuscular preparations. Those with incomplete follow-up who had negative cultures and were clinically well for one week were considered as probable cures, since they cannot be considered as definitely cured.¹⁰ Patients who had

apparent clinical and bacteriologic cures for at least one week and later returned with symptoms and discharge beginning more than four days after an exposure to a known source of infection were classified as reinfections. Bloods were taken for levels at irregular intervals during the course of treatment in most of the patients.

SERUM LEVELS AFTER SINGLE DOSES

Normal Subjects.—The results obtained in 4 subjects with single oral doses of 90,000 units of three different preparations of penicillin given both before and after breakfast are shown in chart 1. The levels obtained after a single intramuscular injection of 15,000 units of sodium penicillin in saline solution are also shown for comparison. All of the observations with tablet C and those with penicillin in saline solution given orally to subject A were done twice. From this chart it is seen that:

1. The doses given orally before breakfast all produced serum levels which were usually better than those obtained from 15,000 units intramuscularly. Many of the levels compared with those obtained after an intramuscular dose of 25,000 units.¹¹ These serum levels, moreover, were fairly comparable in different subjects, the variations being no greater than those found after intramuscular doses in different subjects or after repeated doses in the same subject.¹¹
2. Ordinary commercial penicillin given orally in saline solution one-half hour before breakfast produced serum levels which were as high as and were maintained as well as or better than similar amounts given under similar conditions but in a specially prepared tablet which allegedly contained "buffers" and "stabilizing agents," or when the saline solution of penicillin was given together with aluminum hydroxide gel.
3. The same doses given to the same subjects one-half hour after a similar meal resulted in levels which varied considerably from the different preparations and in the different subjects. (a) Penicillin could be detected in the serum in only 1 of the 4 subjects after tablet C, and

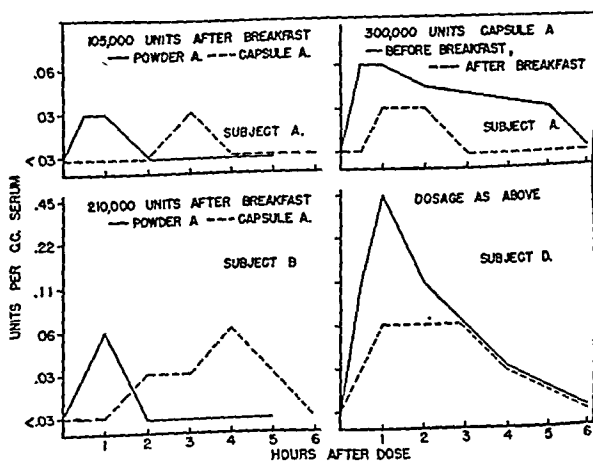


Chart 2—Left, serum levels obtained when the same dose was given orally after breakfast in a powder and in a capsule containing adjuvants. Right, serum levels after single 300,000 unit doses before and after breakfast in 2 normal subjects.

the same results were obtained on two separate occasions in each subject. (b) The greatest variations were noted with the saline solution given after a meal: Subject B had no demonstrable penicillin in the serum, subjects A and D had low levels on one or two occasions and

9 Mrs. Helen Trousdale made the bacteriologic determinations and rendered other valuable assistance in this part of the study. The patients were treated through the courtesy of Dr. Herbert H. Howard.
10 Lapenta, R. G.; Weckstein, A. M., and Sarnoff, H.: The Inadequacy of a Standardized Dosage of Penicillin in the Treatment of Gonococcal Urethritis, *J. A. M. A.* 128:168 (May 19) 1945.

11 Ory, E. M.; Meads, M.; Brown, B.; Wilcox, C., and Finland, M.: Penicillin Levels in Serum and in Some Body Fluids During Systemic and Local Therapy, *J. Lab. & Clin. Med.*, to be published.

subject C had levels comparable with those obtained after the 15,000 unit intramuscular dose. (c) The saline solution of penicillin mixed with aluminum hydroxide gel and given after a meal gave rise to low serum levels for one or two hours in subjects A and B and moderate levels which were more sustained in subjects C and D.

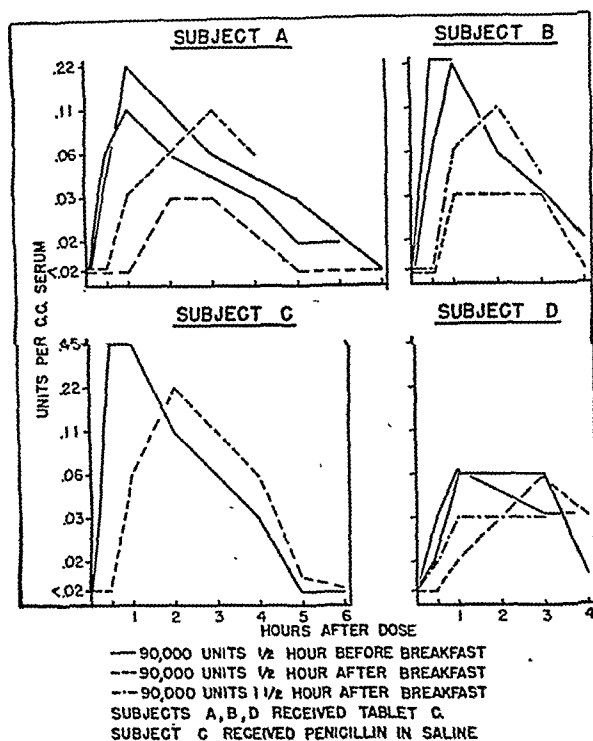


Chart 3.—Serum levels after single 90,000 unit doses of penicillin given orally before and after breakfast in 4 patients with pernicious anemia.

4. The variations observed with the doses that were taken after a meal were not consistent in the different individuals. Thus subject D, who was the only one having good levels from tablet C, showed the poorest serum levels after the saline solution and the most sustained level when the same solution was given mixed with the aluminum hydroxide gel. (This subject is known to have gastric hyperacidity and hypermotility.) Subjects A and C obtained comparable serum levels after the penicillin in saline solution with or without the added gel while failing to get demonstrable levels from tablet C.

The serum levels obtained in 2 of the same subjects when 300,000 units was taken in the form of capsule A before and after breakfast are shown in the right side of chart 2. Absorption was more rapid and more complete when the dose was given before the meal. The maximum levels were higher each time in subject D. The levels in every instance were maintained longer than was the case with the 90,000 unit doses, and they were better sustained in subject D than in subject A.

On the left hand side of chart 2 are shown the levels obtained in 2 of the normal subjects with the same dose of penicillin given after a meal, once in the form of crude penicillin powder and again in capsule A, in which this same powder, mixed with shellac, beeswax and oil, was enclosed in a thin gelatin capsule. The maximum levels in the same subject were similar but were attained later with the capsule than with the powder. In subject B the levels were also sustained longer when the penicillin was taken in the capsule containing the adjuvants.

Achlorhydric Subjects.—The serum levels after 90,000 units given orally before and after a meal in 4 patients with pernicious anemia in remission are shown in chart 3. The penicillin was demonstrable in the achlorhydric subjects for four to six hours, as compared with only two to four hours in the normal subjects. Here again the levels were higher and somewhat better sustained when the dose was given before a meal, and they were quite irregular when it was given after a meal. Furthermore, the maximum levels were generally higher in these subjects than in the normal ones when the same materials were given under the same conditions. The penicillin appeared in the serum later when the dose was given after breakfast than it did in the same subject when the same dose was given before a meal. The highest levels were obtained when the dose was given in saline solution either before or after a meal.

SERUM LEVELS DURING REPEATED ORAL ADMINISTRATION

Normal Subjects.—Prior to embarking on a therapeutic trial with oral preparations it seemed desirable to determine whether serum levels could be maintained with large doses given orally at frequent intervals. A large priming dose was given in the morning immediately before breakfast, and the sustaining dose was given one hour later and repeated at two hour intervals for four more doses. Dinner was taken just before the fourth dose. This sort of schedule seemed applicable in the outpatient clinic for use in the treatment of acute gonorrhea. The serum levels in 4 control subjects given two different amounts of penicillin in capsule A on this time schedule are shown in chart 4.

There were considerable variations in the results obtained in the 4 subjects. In subjects D and E the penicillin was detectable and reached significant levels after an hour. In subject B none was detected until the third hour, and in subject A it was first demonstrated only after five hours. In all 4, however, there

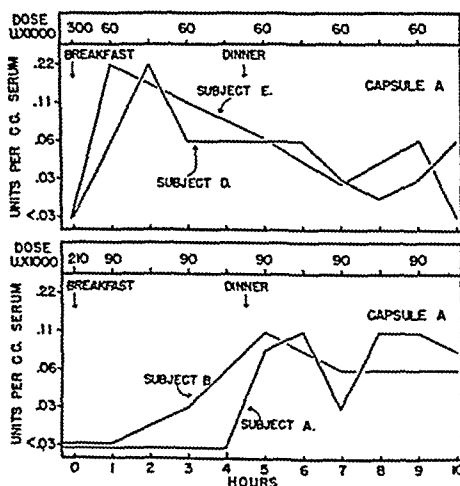
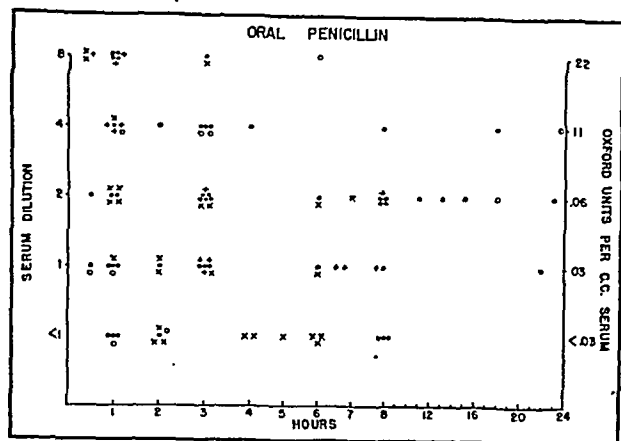


Chart 4.—Serum penicillin levels during repeated oral doses in normal subjects.

were significant, though variable, amounts in the serum for at least six of the ten hours during which observations were made. The levels did not show any constant fluctuations in relation to the meals. It seemed from these preliminary observations that the larger initial dose and the larger follow-up doses were more desirable.

Patients Under Therapy.—The serum levels obtained at different times during the course of the oral administration of some of the preparations in the treatment

of patients in the clinic and in the wards, using somewhat similar dosage schedules, are shown in chart 5. On the whole, satisfactory levels were obtained in most instances, but they were quite irregular. Some of the failures to detect penicillin in the serum during the first hour may have been due to the fact that the patient had



- CAPSULE A—315,000 UNITS, 1 HOUR LATER 90,000 UNITS THEN 90,000 UNITS EVERY 2 HOURS
- + CAPSULE B—300,000 UNITS, 1 HOUR LATER 100,000 UNITS THEN 100,000 UNITS EVERY 2 HOURS
- × TABLET C—120,000 UNITS, THEN 60,000 UNITS EVERY 2 HOURS
- TABLET C—150,000 UNITS, 1 HOUR LATER 90,000 UNITS THEN 90,000 UNITS EVERY 2 HOURS

Chart 5.—Serum levels obtained during oral penicillin therapy with various preparations and dosage schedules.

taken a meal shortly before the initial dose. Most of the serums in which penicillin could not be detected (that is, they contained less than 0.03 unit per cubic centimeter) after the first hour were from patients who received the smallest amounts of tablet C, namely 120,000 units followed by 60,000 units every two hours. The levels on the other dosage schedules are comparable, on the whole, with those obtained with a dose of 20,000 units given intramuscularly every three hours. The chief differences seem to be that with the latter method one is certain of obtaining significant levels during the first hour or two after each injection but not during the third hour,¹¹ whereas with the oral doses, even when given every two hours, the level at any time in any 1 subject cannot be predicted so long as food is taken during the treatment.

CLINICAL OBSERVATIONS

It seemed from these preliminary findings that the magnitude of the serum levels and the fluctuations obtained when the larger doses were given were not significantly different from those noted during intermittent intramuscular penicillin therapy with the doses which are most frequently and successfully used. Clinical trials with oral penicillin preparation in large doses, therefore, seemed justified. It was obvious, however, that only a rough estimate of the effectiveness of such therapy could be gained unless large numbers of cases could be studied with adequate clinical and bacteriologic control. Even greater numbers would, of course, be required for any reasonable comparison of different preparations or dosage schedules. This has already become clear from attempts to establish in cases of gonorrhea the curative dose of ordinary commercial penicillin given by intramuscular

injection.¹⁰ The present observations were therefore intended only as a test of the feasibility and general effectiveness of some of the preparations that were available.

Acute Gonorrhea.—A total of 61 patients were treated with various preparations and dosage schedules. Included are 5 patients who were given four doses of 25,000 units of ordinary penicillin in saline solution mixed with aluminum hydroxide gel. This method and dose had been suggested as giving complete and prolonged absorption. Two other patients are included, although, through a misunderstanding, they took only a single dose and left the clinic; but they returned for the follow-ups and were observed without further treatment. In general the total amounts were given in four to six doses, one or two hours apart. The patients were not all instructed to come to the clinic fasting, but about half of them had no breakfast or only a cup of coffee before the treatment was begun and the others had breakfast from one to two hours before the first dose. Most of them took a light meal after the third or fourth dose.

The results are listed in the table according to the criteria previously set forth. Since the duration of the treatment as well as the total dose may influence the result, both are shown in the table. It is seen that the majority of the cases were cured with each of the doses used and that probably doses of 450,000 units or more gave cure rates comparable to those usually reported from 100,000 units of penicillin given intramuscularly. That, however, cannot be stated with any certainty from this small number of cases. Clinically it was noted that, except with the largest doses used, the response of the individual patients to the oral therapy was not quite as good as that observed after the full intramuscular dose. With the former, some dysuria and mucoid or slightly purulent discharge continued for twelve to twenty-four hours longer in spite of the fact that organisms could not be seen on smear or obtained from cultures of the exudate after the last dose was

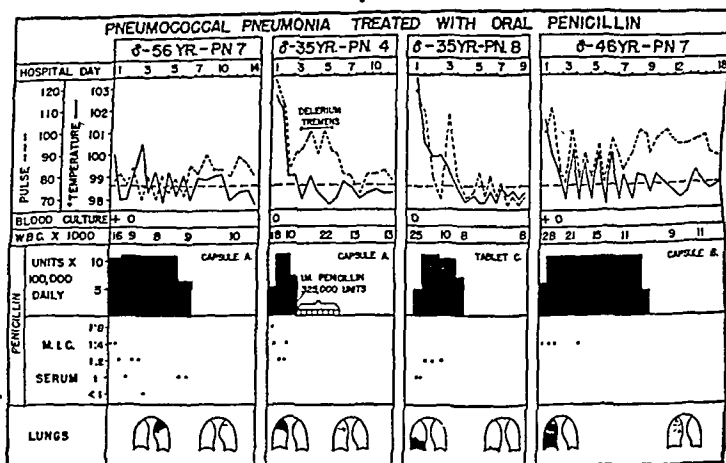


Chart 6.—Clinical course and certain relevant features in 4 cases of pneumococcal pneumonia treated with oral penicillin. The minimum inhibiting concentration of penicillin (M. I. C.) is shown in terms of dilution of serum (0.2 cc. amounts). In terms of Oxford units, 1 is equivalent to 0.03 unit, 1:2 = 0.06 unit, and so on.

taken. The cases which are listed as failures or probable recurrences all subsequently responded with complete clinical and bacteriologic cure after the usual doses of 100,000 units given in four intramuscular injections. Some of the serum levels obtained during treatment in these cases are shown in chart 5.

Pneumococcal Pneumonia.—The clinical course and some of the relevant findings in 7 patients with typical lobar pneumonia who were treated with oral penicillin are shown in charts 6 and 7. The disease was only of moderate severity in all, but 2 of them had positive blood cultures before treatment. Treatment was begun

UNTOWARD EFFECTS

Some of the control subjects and patients who received capsule A experienced slight abdominal discomfort accompanied by increased peristalsis, and they usually passed one or two loose and bulky stools, but none had any definite diarrhea. This may be attributable to the shellac. Both the crude and the ordinary commercial penicillin have a rather persistent and unpleasant taste which somewhat resembles that of licorice powder. There was also a mild odor of amylacetate to some of the preparations. No other untoward effects were experienced from any of the preparations.^{12a}

COMMENT

Two points stand out from the results of the serum levels obtained after single oral doses of penicillin. The first is the paramount importance of the time when a dose is given in relation to a meal. When the penicillin was taken one-half hour before breakfast, effective absorption was good and regular and this can probably be assumed for longer periods before the meal. When taken after the meal, the serum levels were irregular and unpredictable. Persons with achlorhydria had good serum levels for longer periods than normal persons when penicillin was given before a meal. When the penicillin was taken after the meal, absorption in the achlorhydric subjects was delayed and the serum levels were lower than when taken before a meal but were regularly higher and better sustained than in normal subjects. The importance of the size and of the various constituents of the meal as well as the duration of their effects has not been determined. These factors require further study, which should bring to light information that may be of practical importance in improving the results of oral therapy.

The second point which was quite striking was the fact that ordinary commercial penicillin powder when given in saline solution before a meal gives levels which are at least as high and as well sustained as the various preparations tested which contained buffers and stabilizers in tablets or capsules. This was generally true both before and after a meal with the possible exception

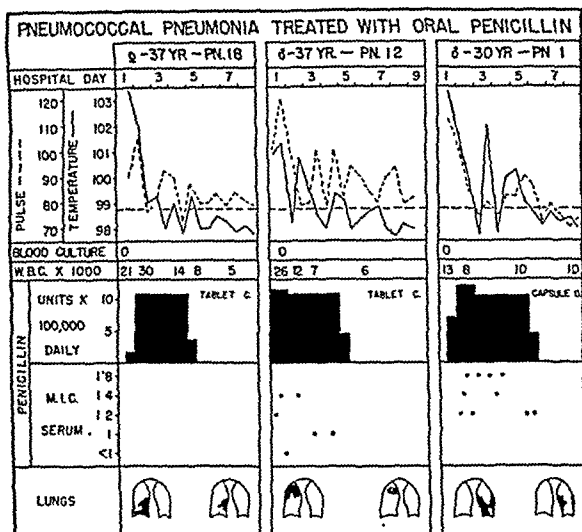


Chart 7.—Clinical course and certain relevant features in 3 cases of pneumococcal pneumonia treated with oral penicillin. The minimum inhibiting concentration and Oxford units are as in chart 6.

between the first and fourth days in 6 cases and on the seventh day in the remaining case. The initial dose was 300,000 units in 5 and 150,000 units in the other 2. The follow-up doses of 90,000 or 100,000 each were given every two hours thereafter and continued until the temperature had remained normal for about forty-eight hours. One patient developed delirium tremens after the temperature, pulse and leukocyte count had reached normal and he was clinically improved. A few intramuscular injections of penicillin were then given on that account. The total oral dose varied between 2.5 and 8.5 million units. The largest dose was used in a patient who had low grade fever for six days associated with an interlobar pleural effusion.

As seen from charts 6 and 7, the results are comparable with those obtained with effective sulfonamides given in full doses or with the usual doses of 15,000 units of penicillin given every two or three hours.¹² The patients were all clinically improved within twelve hours and were essentially afebrile in from twelve to thirty-six hours except in the case that was complicated by the pleural effusion. In the 2 cases in which blood cultures were positive before treatment, subsequent ones taken twelve hours later were negative. Studies of the sputum in these cases showed that pneumococci could not be recovered on the second day of treatment or later. In these respects too the results were comparable to those obtained with intramuscular penicillin therapy. The serum taken at various intervals usually showed complete inhibition of the test strain of hemolytic streptococcus either when used in 0.2 cc. amounts undiluted or up to a 1:8 dilution. These levels are equivalent to concentrations ranging from 0.03 to 0.22 unit per cubic centimeter of serum. Only rarely did the concentration fall below the lowest detectable level of 0.03 unit per cubic centimeter of serum.

Acute Gonorrheal Urethritis Treated with Oral Penicillin

Preparation	Total Dose, Units	Hours First to Last Dose	Number of Patients	Cures and Probable Cures	Failures	Probable Reinfections
With aluminum hydroxide gel.	100,000	6	5	3	2	0
Tablet C.	120,000	1	1	1	0	0
Capsule D.	150,000	1	1	1	0	0
Tablet C.	500,000	6	8	4	4	1
Tablet C.	450,000	5	6	6	0	0
Tablet C.	310,000	7	6	6	0	0
Tablet C.	610,000	5	2	2	0	0
Capsule D.	600,000	7	17	14	1	2
Capsule A.	750,000	8	11	9	1	1
Capsule B.	800,000	8	4	4	0	0
			61	50	7	4

* These patients left after an initial dose and received no other therapy but returned for a check up later.

of the aluminum hydroxide gel, which may have slightly increased and prolonged the absorption of the saline solution of penicillin when given after a meal.

The significance of the levels obtained from the single doses and during the course of treatment in the present study can best be appreciated by comparison with the

12. Meyers, M.; Harris, H. W., and Finland, M.: Treatment of Pneumococcal Pneumonia with Penicillin, *New England J. Med.* 232:747 (June 28) 1945.

12a In a recent case of pneumococcal pneumonia with bacteremia that was treated with oral penicillin alone a maculopapular rash developed on the fifth day and nitrogen retention (nonprotein nitrogen 165). These cleared within thirty-six hours after penicillin was discontinued.

in vitro penicillin sensitivity of various common pathogenic strains and with the levels obtained during routine treatment with the usual intermittent intramuscular doses. Data obtained in this clinic by the same or comparable methods are summarized elsewhere.¹³ A concentration of 0.03 unit per cubic centimeter was found to be sufficient in vitro to sterilize cultures of all strains of gonococcus and group A hemolytic streptococcus, the great majority of strains of pneumococcus and Streptococcus viridans, but only one half or less of the strains of meningococcus and Staphylococcus aureus. Most of the remaining strains of the two latter organisms and occasional streptococci from cases of subacute bacterial endocarditis required from two to eight times this concentration. Several of the staphylococci required even greater amounts. Thus, the levels obtained with the oral preparations in the doses used may be expected to prove effective in gonococcal, hemolytic, streptococcal and pneumococcal infections, but they may fail in many cases of staphylococcal or meningococcal infection and in some cases of subacute bacterial endocarditis.

The results in the clinical cases are obviously of a most preliminary nature. They do indicate, however, that treatment with penicillin given at brief intervals and in large doses is feasible and effective at least in cases which respond to low or moderate doses of parenteral penicillin. Obviously, clinical judgment dictates that the parenteral route is the preferable one for initiating treatment in all severe infections and for maintaining therapy in those infections in which large doses given over a long period have already proved essential for the best results.

SUMMARY AND CONCLUSIONS

A dose of 90,000 units of penicillin given by mouth one-half hour before breakfast regularly gave serum levels comparable with those obtained from 15,000 or 20,000 units given intramuscularly. The levels obtained in the serum when the same amount of penicillin was given one-half hour after breakfast were very irregular and unpredictable.

As compared with normal persons, achlorhydric individuals had more sustained serum levels from oral penicillin taken before a meal and higher as well as better sustained levels from the postprandial dose.

The serum levels obtained with ordinary penicillin in saline solution were at least as high and as well sustained as with any of the special oral preparations tested. This was true both before and after meals except possibly when aluminum hydroxide gel was used in addition to the saline solution of penicillin after a meal.

Effective penicillin levels could be fairly well maintained with several oral preparations given in 90,000 or 100,000 unit doses every two hours.

The results of preliminary clinical trials in gonorrhea and in pneumococcal pneumonia suggest that oral penicillin therapy is feasible in these infections. They suggest further that oral therapy should prove effective in other infections in which low doses of parenteral penicillin have proved adequate. Parenteral penicillin should be used to initiate therapy in all severe infections and in those which experience has already shown to require prolonged treatment with large parenteral doses.

THE TREATMENT OF PNEUMOCOCCIC PNEUMONIA WITH ORALLY ADMINISTERED PENICILLIN

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Several groups of investigators have demonstrated that it is possible to attain appreciable concentrations of penicillin in the blood following the oral administration of the material in various vehicles.¹ In a previous communication² it was reported that the height and duration of the blood penicillin concentrations observed in fasting subjects after oral administration are of the same order of magnitude regardless of whether the penicillin is administered following an antacid, as a suspension in oil, as a suspension in oil mixed with beeswax or in plain water. With any of these methods approximately five times as much penicillin is required to achieve a given blood concentration when the material is administered by the oral as by the intramuscular route. From the studies of urinary excretion there was no evidence that any of the vehicles promoted the absorption of more penicillin than occurred following the ingestion of the material in water. This original investigation has been extended to include a number of additional vehicles³ and methods for the oral administration of penicillin. These results will be reported elsewhere,⁴ but it can be said at this point that in no instance was it possible to demonstrate that any method was superior to the oral administration of powdered penicillin in a capsule or dissolved in water.

The present report is concerned with the therapeutic results attained following the oral administration of penicillin to a series of 45 patients with pneumococcal pneumonia. The patients were treated in the medical service of the New York Hospital and in the Second Medical (Cornell) Division of Bellevue Hospital. All patients in whom the diagnosis of pneumococcal pneumonia was established who were admitted to the two services during the period of study (December 1944 to May 1945) are included in the series (table 1).

VEHICLES AND METHODS OF ADMINISTRATION

Both the calcium and the sodium salts of penicillin were used. The former was given as a suspension in corn or cottonseed oil enclosed for convenience in a quick dissolving gelatin capsule.⁵ In a few instances the oil suspension of calcium penicillin was mixed with

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The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Cornell University Medical College.

¹ Libby, R. L.: Oral Administration of Penicillin in Oil, *Science* **101**: 178, 1945. Little, C. J. H., and Lumb, G.: Penicillin by Mouth, *Lancet* **1**: 203, 1945. György, Vandegrift, Elias, Colio, Barry and Pilcher.² McDermott, Bunn, Benoit, DuBois and Haynes.³

² McDermott, W., Bunn, P. A., Benoit, M.; DuBois, R., and Haynes, W.: Oral Penicillin, *Science* **101**: 228, 1945.

³ The methods or vehicles for the oral administration of penicillin include (1) oil suspension mixed with beeswax, (2) oil suspension mixed with shellac, (3) trisilicate tablets, (4) lecithin, (5) mucin, (6) adsorption on amphoter and (7) stearates.

⁴ McDermott, W.; Bunn, P. A., Benoit, M.; DuBois, R., and Haynes, W.: The Absorption, Destruction, and Excretion of Orally Administered Penicillin, to be published.

⁵ The penicillin in oil suspension and the penicillin X were supplied through the courtesy of Dr. Benjamin W. Carey, medical director of Lederle Laboratories, Inc., Pearl River, N. Y.

13. Meads, M.; Ory, E. M.; Wilcox, C., and Finland, M.: Penicillin Sensitivity of Strains of Six Common Pathogens and of Hemophilus Hemolyticus, *J. Lab. & Clin. Med.*, to be published. Ory, Meads, Brown, Wilcox and Finland.

5 per cent beeswax before it was capsuled. In about one half of the series (22 patients) the only preparation used was the sodium salt of penicillin in the customary powdered state enclosed in a gelatin capsule or dissolved in 20 or 30 cc. of iced tap water (table 1). Although the aqueous solution of penicillin is somewhat bitter to the taste, its administration caused little or no inconvenience to the patients. Three patients were treated solely with the aqueous solution of a preparation which contained approximately 90 per cent of the X fraction of penicillin.⁶

appearance of a crisis, the administration throughout the night was discontinued. From this point on the 50,000 unit doses were given from 8 a. m. to 10 p. m. inclusive.

With eight exceptions the duration of treatment varied from four to seven days.

No particular effort was made to arrange the timing of meals in relation to the administration of the penicillin despite the fact that the effectiveness of orally administered penicillin is appreciably diminished by the ingestion of food.⁶

TABLE 1.—Forty-Five Patients with Pneumococcic Pneumonia Treated with Oral Administration of Penicillin

No	Name	Day of Illness Treatment Began	Sex	Age	Type	Maximum White Blood Cells	Location	Vehicle	Total Dose, Millions of Units	Total Days of Treatment	
1	E S	1	♀	66	8	21,000	RUL	Oil	19	4	
2	H M	3	♀	58	3	32,000	RML	Oil	20	3	
3	S W	1	♀	18	1	41,000	RML	Oil	216	4	
4	C B	4	♀	40	1 and 5	26,000	RLL	Oil	216	4	
5	P G	2	♀	15	2	24,000	LLL	Oil	234	4	
6	H W.	1	♀	37	2	18,000	LLL	Oil	2504	4	
7	R H	1	♀	37	6	14,600	LLL	Oil	257	4.5	
8	H K	2	♀	80	3	15,800	LLL	Oil	26	4	
9	M H	5	♀	36	Unclassified	38,000	LLL	Oil	27	4	
10	M E	1	♀	35	1	20,000	LLL	Oil	20	4	
11	A D	2	♀	47	2	22,500	RML and LLL	Oil	324	4	
12	J C	1	♀	16	7	25,000	RML	Oil	3264	4	
13	J R	4	♀	33	1	19,500	RLL	Oil	375	4	
14	K G	1	♀	44	10	12,900	LLL and RLL	Oil	43	4	
15	J G	4	♀	57	8	17,100	LLL	Oil	526	5(9)	
16	A S	1	♂	54	19	14,000	RUL	I M. Oil	0480	7	
17*	E B	?	♀	50	2	13,000	RUL	Water	0300	6 hrs	
18†	F R	4	♀	21	5	19,000	RML and RLL	Water I M	0850 2883	1(1) 10(11)	
19	J C	3	♀	33	12	25,000	RLL	Capsule	145	3	
20	R D	1	♀	24	4	16,200	RLL	Capsule	18	4	
21	W A	2	♀	58	1	25,000	RLL	Capsule	21	4	
22	F H	1	♀	41	12	24,000	LLL	Capsule	22	4	
23	J G	2	♀	56	2	15,600	RML	Capsule	22	4	
24	H G	1	♀	40	Unclassified	15,200	LLL	Capsule	22	4	
25	P M	8	♀	43	5	20,000	LLL	Capsule	23	4	
26	J B	3	♀	76	Unclassified	18,500	LLL	Water	30	4	
27	B C	2	♀	52	5	11,600	RLL	Water	295	5.5	
28	M C	1	♀	44	3	21,400	LLL	Water	305	6	
29	D G	7	♀	46	Unclassified	24,000	LLL	Water	375	7	
30	F F	3	♀	70	5	13,000	RML	Capsule	40	11	
31	H R	1	♀	66	6	16,100	RML	Water	40	5	
32	J A	14?	♀	57	8	22,200	RLL	Capsule	49	9	
33	M H	1	♀	67	3	20,300	RLL and LLL	Water	50	9	
34	D C	1	♀	47	1 and 6	11,000	LLL	Water	67	6(15)	
35	B B	2	♀	65	21	20,300	LLL and RLL	I M. Water	231	9(15)	
36	M C	3	♀	21	1	22,400	RLL	Water (X)	245	4.5	
37	J R	2	♀	40	Unclassified	13,100	RUL	Water (X)	32	4	
38	T M	3	♀	45	Unclassified	21,900	RUL	Water (X)	49	8	
39	J O	2	♀	41	Unclassified	14,100	RML	Oil, capsule	26	4	
40	A M	7	♀	54	14	12,400	RML	Oil, capsule	205	4.5	
41	C G	2	♀	46	4	13,350	LLL	Oil, capsule	26	4	
42	T C	4	♀	70	2	8,400	RLL	Oil, capsule	37	5	
43	W W	2	♀	60	25	15,000	LLL	Water, beeswax	286	4	
44	W O H	1	♀	25	Unclassified	8,000	RML and RLL	Water, beeswax	38	5	
45	F R	4	♀	45	18	20,000	RML and RLL	Oil, beeswax	70	8	
Age Groups					Patients					Patients	
15-19					3					Oil	
20-29					9					Penicillin powder	
30-39					25					Beeswax	
40-49					8					Combination	
Total					45					Total.	

* Death † Complication ‡ Capsule (penicillin powder in a plain gelatin capsule)

DOSAGE REGIMENS

The dosage regimen was gradually modified throughout the period of the study. Because the effectiveness of the treatment was not established, the first patients treated received relatively huge amounts (1 to 2 million units) of penicillin during the first twenty-four hours of therapy. As experience was gained, it was possible to reduce the dosage, and the patients in the latter half of the series were all treated on a relatively constant regimen. This consisted in the initial administration of 200,000 units of penicillin followed by 50,000 unit doses at two hour intervals throughout the twenty-four hour period. Twenty-four to thirty-six hours after the

REACTIONS TO THE INGESTED PENICILLIN

No instances of nausea, vomiting, diarrhea or other gastrointestinal disturbances occurred following the oral administration of penicillin by these regimens. One patient developed mild generalized urticaria, which subsided promptly after the commercial brand of penicillin was changed.

PATIENTS

All of the patients presented the characteristic picture of pneumococcic pneumonia as determined by clinical

6 George, P., Vandegrift, H. N.; Elias, W., Collo, L. G.; Barry, I. M. and Pilcher, J. D. Administration of Penicillin by Mouth. Preliminary Report, J. A. M. A. 127: 632 (March 17) 1945. McDermott, Bunn, Bennett, D. J. and Haynes.

cal, bacteriologic and roentgenographic examinations. Although the pneumococcal infections observed by us during the study (1944-1945) were not so uniformly severe as in some previous seasons, all of the patients were acutely ill and 6 were in a critical state at the time of admission to the hospital. In almost one third of the group (13 patients) an initial bacteremia was present (table 2). Six patients were chronic alcoholic addicts who were intoxicated at the onset of infection. Of 3 patients with organic heart disease, 2 presented the characteristic peripheral evidence of congestive heart failure, and an additional patient was in severe diabetic ketosis when therapy was started.

AGE

The ages of the patients ranged from 15 to 89 years (table 1).

DURATION OF DISEASE AT START OF TREATMENT

As may be seen in table 1, treatment was started in the majority of instances within forty-eight hours of the onset of the pneumonia, as judged by the history of initial chill or first pleuritic pain. In a few patients

temperature to below 38 C. (100.2 F.) with accompanying signs of amelioration of the infection in the absence of peripheral circulatory failure. As may be seen in table 2, such a crisis developed within twenty hours in 11 patients, within thirty hours in an additional 19 patients and within forty-eight hours in 6 more patients. In 8 patients defervescence was not abrupt but developed gradually over a period of ninety-six hours.

No difference in therapeutic response could be demonstrated between the group of patients who received penicillin suspended in oil and those who received penicillin alone.

In chart 1 may be seen a representative example of the onset of crisis within twenty hours of the start of therapy with powdered sodium penicillin in capsules. This white man (W. N.), aged 58, was admitted to the hospital with a history of severe shaking chills, fever, pleuritic pain, nausea and diarrhea of twelve hours' duration. On examination he was found to be acutely ill, cyanotic and still shaking from a recent chill. Signs of consolidation over the area of the right lower lobe were demonstrable by physical and roentgenographic

TABLE 2.—Distribution of *Pneumococcus* Types and Response to Therapy

Type	Number of Cases	Blood Cultures		Temperature Fall						Complete but Delayed Reso- lution	Pleural Effusion Not Treated
				By Crisis			By Lysis, Not More Than 96 Hrs.	Secondary Rise of Temperature			
		Negative	Positive	12 20 Hrs.	20 30 Hrs.	Less Than 48 Hrs.		2-4 Days	7 10 Days		
I..	7	4	3	2	4	..	1	2	..	1	2
II	6	3	3	3	1	1	..	2	..	1	2
III	5	4	1	1	3	1	..	3	1	3	1
IV	2	1	1	1	1	..	..	..	..	..	..
V	3	2	1	1	1	1	..	1	..	1	1
VI	2	2	0	1	1	..	1	..	..	..	..
VII	1	1	0	..	1	..	..	..	..	..	..
VIII	3	2	1	..	2	..	1	2	..	1	1
XII	2	2	0	..	1	..	1	..	..	..	..
XIV	1	1	0	1	..	..	..	1	1	..	..
XVII	1	0	1	..	..	1	..	..	1	..	..
XIX	2	2	0	..	1	..	1	1	..	..	..
XXI	1	1	0	..	..	..	1	..	..	..	..
XXV	1	0	1	..	1	..	..	..	..	..	..
Unclassified	8	7	1	1	3	2	2	1	1	1	1
Total	45	32	13	11	19	6	8	13	5	8	8

the infection had undoubtedly been present for a longer period and in 1 instance therapy was not inaugurated until the fourteenth day of illness.

PNEUMOCOCCUS TYPES

In table 2 may be seen the distribution of the types of infecting pneumococci. The causative organisms in 18 patients (40 per cent) were in serologic types I, II and III. In 2 patients more than one type of pneumococcus was identified in the sputum, but in each patient a type I pneumococcus was the only organism demonstrable by culturing the blood and was considered to be the infecting pneumococcus. It was impossible to classify the organisms in 8 of the patients. In 6 of these an abundance of organisms with the characteristic morphology of pneumococci was present on direct examination of the sputum. Unfortunately, sputum for pneumococcus typing was not obtained from the remaining 2 patients. However, as the pneumonia of these patients both clinically and by roentgenogram was so similar to the picture of pneumococcal pneumonia observed in the others, these 2 cases have been included in the unclassified pneumococcus group.

RESULTS

In the majority of the patients a crisis ensued soon after the inauguration of oral penicillin therapy. The term "crisis" is used to designate an abrupt fall in

examination. Characteristic rusty sputum contained type I pneumococci. There was a leukocytosis of 25,000 cells with a decided increase in the numbers of immature forms, and the blood culture was sterile. Eighteen hours after the institution of therapy with penicillin powder there was an abrupt crisis. This remission of all signs of the infection was maintained, and at the end of seven days a roentgenographic examination disclosed almost complete disappearance of the pneumonia. The subsequent course was uneventful, with eventual complete recovery.

MORTALITY AND COMPLICATIONS

There was one death. The patient was a man aged 50, an alcoholic addict with hepatic cirrhosis who had been found in bed at home by neighbors with an acute illness of unknown duration. On admission to the Bellevue service he was critically ill with a pneumococcus type II pneumonia of the right upper lobe, fever of 40.2 C. (104.4 F.) and a bacteremia. He developed peripheral circulatory collapse with pulmonary edema and died six hours after admission. He had received 200,000 units of penicillin in water on admission and an additional 100,000 units subsequently. Postmortem cultures of the blood were not obtained, so that it is not known whether the treatment had had any effect on the bacteremia. Whether the administration of penicillin by another route would have proved more effective in

this case cannot be determined. However, the small number of fatalities from pneumococcic pneumonia which occur despite the intramuscular administration of penicillin usually develop in this type of case in which the development of shock results in death before there is sufficient time for the antibacterial agent to exert an effect.

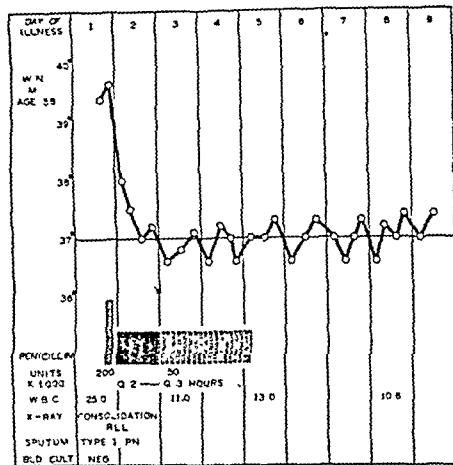


Chart 1.—Onset of crisis eighteen hours after start of oral therapy with powdered penicillin (pneumococcus type I).

One patient developed empyema (chart 2). He was a student aged 21 who entered the hospital on the fourth day of illness. Examination revealed that he was acutely ill, with lobar consolidation of the right middle and lower lobes, cyanosis, dyspnea and fever of 40 C. (104 F.). A type V pneumococcus was found in his sputum, but there was no bacteremia. During the first twenty-four hours of treatment he received 850,000 units of penicillin in oil suspension. At the end of that period his temperature had fallen little and there had been only slight improvement in the clinical picture. As our experience with the treatment of pneumonia with oral administration of penicillin was so limited at the

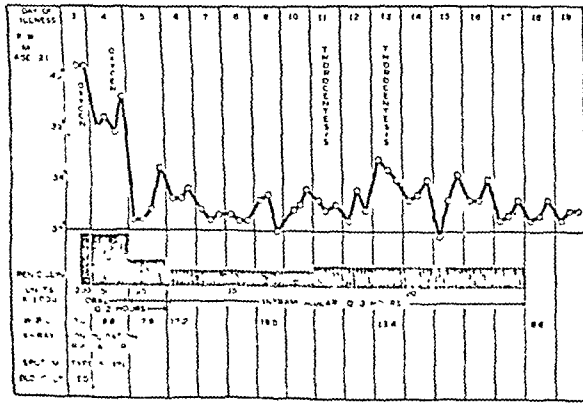


Chart 2.—Pneumococcus type V empyema.

time of this patient's illness, it was decided to change to the intramuscular route. Within six hours of the change the patient's temperature had fallen to normal. Specimens of blood which were obtained during the period of oral administration were subsequently found to contain satisfactory concentrations of penicillin. Because of this finding, and the fact that the crisis occurred within such a short period after the change of route, it is probable that the abandonment of the oral

administration was an unnecessary caution. During the four days after the initial defervescence, while he was still receiving penicillin intramuscularly, the patient's temperature gradually rose and he was discovered to have a pneumococcus type V empyema. This was treated by aspiration and direct introduction of penicillin into the empyema cavity. During the next three weeks there was a gradual but slow resolution of the process in lung and pleura with eventual complete recovery.

A change of the route of penicillin administration from oral to parenteral was also made in 2 other patients in the series. In both of these cases, which were virtually identical, a low grade fever had persisted throughout the week after the initial crisis. In neither case was there any dramatic effect on the course of the fever following the change to intramuscular administration. The fever continued for a few days and then subsided gradually. The clinical course of 1 of these patients may be seen in chart 3. Other than these 3 patients, all the members of the series received the penicillin solely by the oral route throughout the entire period of therapy.

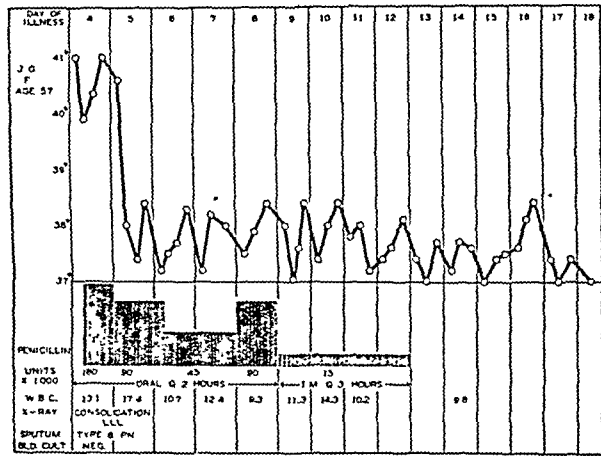


Chart 3.—Persistent low grade fever unaffected by change to intramuscular administration of penicillin (pneumococcus type VIII).

MINOR COMPLICATIONS

Eight patients developed small intrapleural collections of fluid demonstrable by roentgenogram during the course of their illness (table 2). These effusions were presumably sterile, as they resolved completely without aspiration.

"DELAYED RESOLUTION"

In 4 of these patients with effusions and in 4 additional patients resolution of the pneumonia was somewhat delayed. The designation "delayed resolution" is an arbitrary one and is used here to mean any residual, clinical or roentgenographic evidence of the process present later than twenty-one days after the onset of the infection. Four of these patients had not received therapy until after the fourth day of the pneumonia. From a clinical standpoint the course of all 8 of these patients with "delayed resolution" did not differ significantly from the other patients in the group. They were, however, kept under observation in the hospital for a longer period. Eventual complete recovery occurred in 7 patients between the third and the sixth week after onset of the pneumonia. One patient was lost from observation after the fourth week.

OTHER MINOR COMPLICATIONS

On admission to the hospital 1 patient presented an extensive pustular herpetic eruption of the lips and nose, and another had an acute but mild otitis media. In neither case was any special therapy required, and both infections disappeared as the pneumonias resolved.

FEBRILE RELAPSES

Twelve of the 36 patients who developed an abrupt crisis within the first forty-eight hours after the start of penicillin therapy showed a small secondary rise during the second or third day of therapy. This increase in temperature was usually to less than 38.6 C. (101.5 F.) but in 2 patients reached 39 C. (102.3 F.). In no instance was the fever accompanied by evidence of relapse of the infection. In 4 of these 12 patients the fever subsided promptly within thirty-six to forty-eight hours. In the remaining 8 patients the low grade fever persisted for four to seven days, and in 1 instance for fourteen days, before it subsided. An increase of the oral dose of penicillin in 1 patient and a change to the intramuscular route in 2 others did not seem to affect the course of this low grade fever, as mentioned previously (chart 3).

A more striking type of febrile relapse occurred in 5 patients at a two to five day interval after the cessation of penicillin therapy. In general, the peak of these recurring fevers did not exceed 38.5 C. (101.3 F.), but in 1 instance a temperature of 39 C. (102.3 F.) was attained. It was impossible to demonstrate by physical or roentgenologic examination that the return of fever was associated with a relapse or extension of the pneumonia. With some of the patients, however, the febrile recurrence was accompanied by an increase in leukocytes, and in a few instances it seemed as if there was an increase in cough without change in the amount or character of the sputum. This phenomenon of a return of fever after cessation of chemotherapy has been noted by others⁷ following the intramuscular administration of penicillin in pneumococcic pneumonia and will be discussed later.

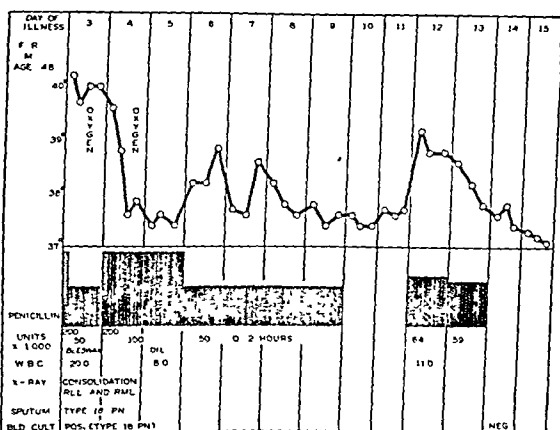


Chart 4.—Secondary fever during therapy, and febrile relapse two days after cessation of therapy (pneumococcus type XVIII).

With the reinstitution of the oral administration of penicillin to 4 of these patients, the temperature and leukocyte count promptly returned to normal with no further relapse after subsequent discontinuance of therapy. The disappearance of the febrile relapse, however, was equally prompt in the other 2 patients who received

no penicillin during the period of recurrent fever. In this connection it should be noted that these febrile relapses occurred between the ninth and the seventeenth day of the pneumonia.

In chart 4 may be seen the clinical course of the patient who presented the most severe of these relapses. The patient was an alcoholic addict aged 48 who was desperately ill with a type XVIII pneumonia at the time of admission to the hospital. There was consolidation of two lobes, a bacteremia, abdominal distention and much difficulty in respiration, accompanied by cyanosis. After the initial crisis the patient's course was characterized by continued elevations of temperature, with two distinct rises to 38.8 C. (101.8 F.) on the third and fourth days of therapy. Following this, recovery was apparently progressing satisfactorily until the ninth hospital day (two days after cessation of penicillin therapy), when there was an abrupt return of fever accompanied by mild pleuritic pain, increase in cough and a moderate leukocytosis. All evidence of relapse disappeared promptly with the reinstitution of therapy, which was continued for a period of two days. The subsequent course was uneventful, with eventual complete recovery.

PREPARATIONS CONTAINING BEESWAX

As may be seen in chart 4, this patient received an unusually large amount (2 million and 50 thousand units) of penicillin during the first forty-eight hours of treatment. The reason for this is that during the first twenty-four hours of therapy he had received an oil preparation which was combined with 5 per cent beeswax. At the time of this patient's illness it was discovered from the studies of the pharmacology of orally administered penicillin which were proceeding concurrently with the therapeutic investigation that preparations of penicillin which contained beeswax are associated with erratic absorption and unpredictable blood penicillin concentrations. It was decided, therefore, to change to another preparation and to repeat the first day of the regimen. Only 2 other patients in the series received preparations containing beeswax. In both patients, however, therapy was initiated with 200,000 units of plain penicillin in water followed by the penicillin-oil-beeswax preparation. It is possible that the somewhat delayed crisis in the patient presented in chart 4 merely represented the severity of his infection and was not a result of irregular absorption of penicillin from the beeswax preparation. However, in the absence of a rapid method for the estimation of the concentration of penicillin in the blood, preparations for the oral administration of penicillin which contain substances which retard absorption should not be used in the treatment of serious infections until their reliability is established.

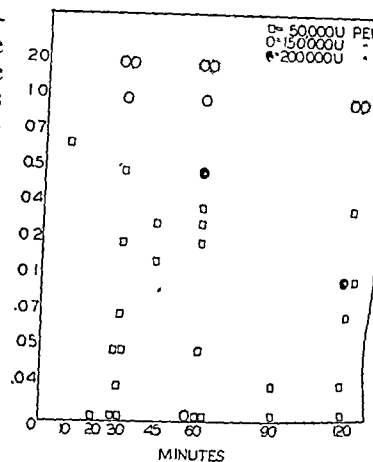


Chart 5.—Random determinations of blood penicillin concentrations per cubic centimeter in pneumococcic pneumonia. Circled points are levels from patient with pernicious anemia.

CONCENTRATIONS OF PENICILLIN IN THE BLOOD
DURING THE ACUTE ILLNESS

The penicillin concentrations attained in the blood at various intervals after oral administration were measured in 9 patients during the period of acute illness. The Kirby-Rantz modification⁸ of the Rammelkamp method of bioassay was used for most of the determinations, although a few were made by the original Rammelkamp technic.⁹ As performed in this laboratory the maximum sensitivity of the latter test is 0.078 unit per cubic centimeter, and of the former 0.04 unit per cubic centimeter in the detection of penicillin in an unknown specimen. In the majority of instances the specimens of blood were obtained after therapy had been in progress for some hours, and no attention was paid to whether the patient had recently ingested food. As a result, the determinations represent a random selection and some may reflect a cumulative effect.

As may be seen in chart 5, a blood penicillin concentration of 0.04 unit per cubic centimeter or higher was present at thirty and sixty minutes after a 50,000 unit dose in all but 2 patients. At 120 minutes after the same dose there was no detectable penicillin in the serum of 1 patient, but in the 4 others concentrations of 0.04 to 0.1 unit per cubic centimeter were present.

Only 3 patients were studied after larger doses (150,000 and 200,000 units respectively), and in 2 a relatively high penicillin concentration (0.1 to 1.0 unit per cubic centimeter) was present 120 minutes after administration; in the other there was no detectable penicillin in the blood sixty minutes after ingestion. The determinations enclosed in a circle (chart 5) were all made on specimens from a patient who had pernicious anemia. The higher levels attained in this patient may be a reflection of gastric anacidity. Unfortunately, only 1 patient was studied after the ingestion of penicillin in oil. The levels attained in this patient were of the same order of magnitude as were observed in others of the group.

In general, the penicillin concentrations observed in these acutely ill patients, although variable, were somewhat higher than is usually encountered following administration of the same oral dose to normal fasting subjects. The explanation of this phenomenon is not entirely clear. It is probable that several factors such as dehydration, accumulation of penicillin in the blood and variations in the effect of the infection on gastric and intestinal motility may play a role. It is equally possible, as discussed later, that under certain conditions, however, an infection could influence gastric motility in such a manner as to inhibit the absorption of ingested penicillin.

COMMENT

Forty-five patients with pneumococcic pneumonia have been treated by the oral administration of penicillin, with only one death and one serious complication. In the 3 instances in which the route of penicillin administration was changed from the oral to the intramuscular, it would seem that no additional advantage was gained. The therapeutic results were as satisfactory whether the penicillin was administered as a suspension in oil or merely as the plain powder dissolved in water or enclosed in a gelatin capsule. With both methods the penicillin concentrations attained in the blood of the patients acutely ill with pneumonia were

comparable or superior to those observed following the oral administration of similar amounts of penicillin to normal subjects.

The fact that the effectiveness of orally administered penicillin is impaired by the ingestion of food does not interfere with therapy. Virtually all patients with an acute pneumonia have not eaten for some hours before admission to the hospital. It was suggested that the meals served in the hospital might be spaced midway between two doses, but as no particular effort was made to enforce this recommendation it is probable that in the busy services it was not always carried out. In any event, at the most only three of the eight or twelve daily doses could have been affected by the ingestion of food.

A number of the patients presented a moderate degree of abdominal distention which did not seem to affect the therapeutic efficiency of the orally administered material. The absorption of ingested penicillin can be hindered, however, by inhibition of gastric motility.⁴ Therefore, if abdominal distention was accompanied by gastric dilatation, as is so frequently the case, it is probable that much larger doses of penicillin would be required for effective oral therapy. Until more information is available on this point, the presence of a moderate or pronounced degree of abdominal distention should be regarded as a contraindication to the use of penicillin by mouth.

A period of thirty to sixty minutes after ingestion is required for the attainment of the peak concentration of penicillin in the blood. Such a short delay would be of no significance in the treatment of most patients with pneumococcic pneumonia. In a critically ill patient with peripheral circulatory failure it is conceivable that even so short a period might be of importance. Under such circumstances, therefore, it would seem to be advisable to administer the initial dose of penicillin parenterally.

As previously mentioned, approximately four or five times as much penicillin must be given orally as intramuscularly to attain the same penicillin concentration in the blood. The regimens used in the treatment of this series of patients with pneumococcic pneumonia were calculated conservatively on the five to one ratio. Accordingly, the initial oral dose of 200,000 units is regarded as the approximate equivalent of 40,000 units intramuscularly and the subsequent 50,000 unit dose as the equivalent of 10,000 units. The administration of penicillin at two hour intervals by either of these regimens (oral or intramuscular) is usually followed throughout the greater part of the period by blood penicillin concentrations above a level (0.04 unit per cubic centimeter) which is presumably sufficient to inhibit most pneumococci.

Tillett, Cambier and McCormack¹⁰ have demonstrated that it is possible to treat pneumococcic pneumonia successfully by the intramuscular administration of penicillin in regimens which would not maintain detectable concentrations of penicillin in the blood continuously. In patients whose illness was of only moderate severity, these investigators¹¹ found that 10,000 units intramuscularly at three hour intervals for only four doses per day was a satisfactory regimen. In more severe infections they recommend an initial intravenous dose of 25,000 units, which is repeated at a three hour interval. Subsequent therapy consists of 10,000 units intramuscularly at three hour intervals, the

8. Kirby, W. M. M., and Rantz, L. A.: Methods of Measuring Penicillin Concentrations in Body Fluids, *J. Bact.* 48: 603, 1944.
9. Rammelkamp, C. H.: A Method for Determining the Concentration of Penicillin in Body Fluids and Exudates, *Proc. Soc. Exper. Biol. & Med.* 51: 95, 1942.

10. Tillett, Cambier and McCormack.¹² Tillett, McCormack and Cambier.

11. Tillett, W. S.; McCormack, J. E., and Cambier, M. J.: The Treatment of Lobar Pneumonia with Penicillin, *J. Clin. Investigation*, to be published.

number of daily doses varying somewhat according to the condition of the patient. They recommend the initial larger doses in the more severe infections for the purpose of controlling the bacteremia and hence preventing metastatic complications.

The penicillin regimens used for the oral therapy of our series of patients with pneumococcic pneumonia were modeled in part after these intramuscular regimens studied by Tillett and his associates. The large initial dose to combat possible bacteremia and the omission of therapy throughout the night after the initial defervescence has been maintained are merely an adaptation of their systems to oral administration. The omission of penicillin therapy during a part of the night is undoubtedly a convenience to both patients and staff. Whether it is good chemotherapeutic practice in terms of the attainment of the maximum possible therapeutic result in the shortest period of time has not been established as yet. As far as could be ascertained in such a small series, the therapeutic results in the 6 patients in whom the night doses were omitted were identical with those obtained with the other members of the group.

Be that as it may, the return of fever and other minor evidences of infection in 5 patients after the cessation of penicillin therapy would indicate that all of the treatment regimens used in this series, although successful, were somewhat less than ideal. To be sure, the particular relapses observed were minor in character and were apparently without effect on the outcome of the disease. It is conceivable that this might not always be the case. Furthermore, a diagnostic problem is created. For the relapse, manifested by the return of fever and possibly by an increase in leukocytes, develops at a time when more serious complications such as empyema or endocarditis are most likely to make an appearance. To exclude the presence of such complications requires a reinvestigation of the case and the performance of laboratory tests, to say nothing of the worry occasioned the patient and the physician. The benign character of the relapse as distinguished from a complication is eventually made evident by the prompt disappearance of the former, either spontaneously or following the reinstitution of penicillin therapy.

This phenomenon of the return of signs of infection within a short period of the cessation of chemotherapy is by no means unique to the oral administration of penicillin. Several groups of investigators⁷ have noted the same phenomenon in the treatment of pneumococcic pneumonia by the parenteral administration of penicillin. Tillett and his colleagues¹² observed that the administration of large doses of penicillin in a single day to patients acutely ill with pneumonia produced a well defined remission of the signs of infection, which was followed within twenty-four or thirty hours by a relapse. In addition, these investigators¹¹ reported that, when penicillin was given over a four day period and then discontinued despite the presence of a low grade fever, the fever might continue for several days thereafter although the eventual result was perfectly satisfactory. In a few patients who continued to have fever for a longer period despite the continued intramuscular administration of presumably adequate amounts of penicillin, a change of chemotherapy to sulfadiazine was without noticeable effect on the rate of recovery, which was eventually complete. The latter cases of Tillett's are of interest in connection with the 2 cases reported

here in which the change from the oral to the intramuscular administration of penicillin exerted no apparent effect on the course of the persistent but eventually subsiding fever.

At Fort Bragg¹³ it was noted that in 57 per cent of a series of 75 patients with pneumococcic pneumonia treated with penicillin by the intramuscular route there occurred a transient increase in temperature in the period immediately following the initial crisis. Seven patients in the series showed a febrile relapse after cessation of therapy. However, all of the 7 had received small amounts of penicillin as part of an attempt to establish the minimal effective dose regimen for pneumonia. Despite the occurrence of the secondary fevers, the therapeutic results observed in this series were uniformly excellent.

Thus it is evident that with the penicillin treatment of pneumococcic pneumonia by either the oral or the intramuscular route there are two types of febrile relapses which occur in a minority of the patients. In one there may be a partial return of fever after the initial crisis despite the continued administration of the penicillin, whereas in the other the fever and minor signs of infection may return after the cessation of therapy in a previously afebrile patient.

The underlying mechanism of these phenomena has not been established. It is possible that the penicillin inhibits or destroys only the organisms in the heavily infected edematous zone at the periphery of the pneumonia but is unable to penetrate the exudate sufficiently to eliminate the pneumococci from the consolidated areas, in which case the destruction of the latter organisms would have to await the development of the normal cellular and immune forces in the host. In general, these mechanisms of immunity are not operating effectively until the fourth to the eighth day of the disease.

Further investigation of this problem should be pursued. In the absence of more exact information, however, and as the supply of penicillin is no longer so limited, it would seem that the duration of treatment in penicillin therapy of pneumococcic pneumonia, whether oral or parenteral, should be prolonged over a period well beyond that required for the attainment of maximum effectiveness of the natural defenses of the host. The patients treated in the latter part of the series presented in this report were accordingly treated for seven days or longer, depending on the duration or severity of the infection.

SUMMARY

1. Forty-five patients with pneumococcic pneumonia have been treated with the oral administration of penicillin with only one death and one serious complication, an empyema.
2. The therapeutic results in this series were comparable to those observed in the penicillin treatment of pneumococcic pneumonia by the intramuscular route.
3. Although relatively huge amounts of penicillin were used at the beginning of the study, the patients in the latter half of the series received 750,000 units on the first day and 400,000 to 600,000 units on the subsequent days of therapy.
4. It is believed that, in order to diminish the possibility of relapse, therapy should be prolonged for seven or more days, depending on the duration and the severity of the infection.

12. Tillett, W. S.; Cambier, M. J., and McCormack, J. E.: The Treatment of Lobar Pneumonia and Pneumococcal Empyema with Penicillin, *Bull. New York Acad. Med.* 20: 140, 1944.

13. Kinsman, J. M.; Daniels, W. B.; Cohen, S.; McCracken, J. P.; D'Alonzo, C. A.; Martin, S. P., and Kirby, W. M. M.: The Treatment of Pneumonia with Sulfonamides and Penicillin, *J. A. M. A.* 128: 1219 (Aug. 25) 1945.

5. The therapeutic results obtained following the use of powdered penicillin dissolved in water or enclosed in capsules were as good as were observed after the administration of penicillin suspended in oil.

6. The concentrations of penicillin attained in the blood of 9 patients acutely ill with pneumonia after the ingestion of the aqueous solution, or the dry powder of penicillin (8 patients) or the oil suspension (1 patient) were comparable to or possibly higher than those usually attained after the same oral dose in normal subjects.

525 East Sixty-Eighth Street.

PENICILLIN BY MOUTH

REPORT OF A CLINICAL TRIAL

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In 1941 Abraham and his associates¹ attempted to administer penicillin by the oral route and found that it was rapidly destroyed by the gastric acidity. These investigators employed phenyl salicylate coated capsules with relatively small doses of the drug but abandoned this method after unsuccessful trials. In corroboratory experiments Rammelkamp and Keefer² also demonstrated that penicillin was inactivated by the hydrochloric acid in the stomach. However, following intraduodenal administration, fairly adequate penicillin concentrations were demonstrated in the blood, approximating those achieved after intramuscular injection. In this regard Rammelkamp and Helm³ gave a penicillin solution containing 20,000 Florey units by mouth to 2 patients with achlorhydria associated with pernicious anemia and observed that the blood concentrations of penicillin were greater than those assayed in normal subjects.

In all of these preliminary experiments in which the oral route was used, comparatively small doses, ranging between 10,000 and 20,000 units, were administered. Antecedent neutralization of the gastric acidity by the use of sodium bicarbonate was attempted in some of these experiments, but in the majority of cases no effort was made to provide any mechanical protection for the conveyance of the penicillin to the small intestine.

The advantages of the oral route of administration of penicillin are obvious and require little elaboration when compared with the prevalent parenteral methods. Because of the rapid rate of excretion in the urine, frequent intramuscular or intravenous injections of

penicillin are required to maintain therapeutic concentrations in the blood. The inconvenience of such a regimen, both to the patient and to the hospital personnel, are manifest. Continuous intravenous infusions maintain a more constant serum level, but close supervision is necessary and the incidence of thrombosis is large enough to make the intramuscular route preferable.⁴ Furthermore, hospitalization is usually mandatory for the treatment of infections susceptible to penicillin when the parenteral route is employed.

Consideration of these difficulties has stimulated investigation of methods of prolonging therapeutic blood levels so that less frequent injections will be required. Toward this end, production of a kidney excretory blockade by diodrast⁵ or para-amino hippuric acid⁶ has been tried but does not seem practical for routine use. Similarly a combination of penicillin in a 3 per cent beeswax-peanut oil suspension⁷ for intramuscular use, as well as preliminary chilling of the muscle,⁸ has been employed to secure prolongation of therapeutic blood levels by decreasing the rate of absorption from the site of injection.

The greater availability of penicillin at the present time makes possible a reevaluation of the oral route of administration. In a preliminary report we⁹ demonstrated that adequate blood concentrations of penicillin could be obtained when penicillin is given by mouth. Several other reports employing various technics for oral administration have appeared in the recent literature; these include combination of the drug with mild antacids¹⁰ or suspension in oils¹¹ or raw egg solutions.¹²

The following report represents a preliminary clinical trial of the efficacy of penicillin when given by the oral route:

METHODS AND MATERIALS

To avoid inactivation, penicillin when given by mouth must escape the destructive influence of gastric acidity and be absorbed from the small bowel before meeting the inhibitory action of *Escherichia coli*.

For the purposes of these experiments the contents of an ampule containing 100,000 units of powdered sodium penicillin was transferred to a plain gelatin capsule (No. 1), which was moistened and sealed and in turn placed in a second capsule of the next larger size (No. 0). Hardening of the capsule containing the penicillin was then accomplished by placing it in solution of formaldehyde U. S. P. diluted 1:20 for five seconds, followed by immersion in 95 per cent alcohol for five minutes. The purpose of the double capsule was to provide additional mechanical protection for the penicillin in its passage through the stomach. Two aluminum hydroxide tablets¹³ were given one-half hour prior to the ingestion of each penicillin capsule in order to neutralize the hydrochloric acid in the stomach.

4. Lyons, C.: Penicillin Therapy of Surgical Infections in the U. S. Army, J. A. M. A. 123: 1007 (Dec. 18) 1943.

5. Rammelkamp, C. H., and Bradley, S. E.: Excretion of Penicillin in Man, *Proc. Soc. Exper. Biol. & Med.* 53: 30 (March) 1943.

6. Beyer, K. H.; Woodward, R.; Peters, L.; Verwey, W. F., and Mitus, P. A.: Prolongation of Penicillin Retention in Body by Means of Para-Amino Hippuric Acid, *Science* 100: 107 (Aug. 4) 1944.

7. Romansk, M. J., and Rittman, G. E.: Penicillin: Prolonged Action of Beeswax Peanut Oil Mixture, *Bull. U. S. Army M. Dept.*, October 1944, No. 81, p. 43.

8. Trumper, M., and Hutter, A. M.: Prolonging Effective Penicillin Action, *Science* 100: 432 (Nov. 10) 1944.

9. Burke, F. G.; Ross, S., and Strauss, C.: Oral Administration of Penicillin: Preliminary Report, J. A. M. A. 128: 83 (May 12) 1945.

10. G6rgy, P.; Vandergrift, H. N.; Elias, W.; Colio, L. G.; Barry, F. M., and Pilcher, J. D.: Administration of Penicillin by Mouth. Preliminary Report, J. A. M. A. 127: 639 (March 17) 1945.

11. Libby, R. L.: Oral Administration of Penicillin in Oil, *Science* 101: 178 (Feb. 16) 1945.

12. Little, C. J. H., and Lumb, G.: Penicillin by Mouth, *Lancet* 1: 203 (Feb. 17) 1945.

13. Creamalin (Winthrop Chemical Company, Inc., 170 Varick Street, New York).

From the Children's Hospital Aided by a grant from George Washington University. Drs. Joseph S. Wall and E. Clarence Rice of the Medical Research Committee, Children's Hospital, Washington, D. C., gave helpful suggestions and advice.

1. Abraham, E. P.; Florey, H. W.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G., and Jennings, M. A.: Further Observations on Penicillin, *Lancet* 2: 177 (Aug. 10) 1941.

2. Rammelkamp, C. H., and Keefer, C. S.: The Absorption, Excretion and Distribution of Penicillin, *J. Clin. Investigation* 22: 425 (May) 1943.

3. Rammelkamp, C. H., and Helm, J. C., Jr.: Studies on the Absorption of Penicillin from the Stomach, *Proc. Soc. Exper. Biol. & Med.* 54: 324 (Dec.) 1943.

From preliminary experiments⁹ the impression was gained that slightly higher penicillin blood levels were obtained when the capsules were taken on an empty stomach. In the clinical trials herein reported, a light diet with low fat content and moderate fluid intake was employed routinely. A three hour schedule of administration of the drug was followed, with slight adjustment of the diet schedule so that at no time was the penicillin capsule administered simultaneously with meals.

The subjects selected for these clinical trials included 14 children ranging in age from 2 to 11 years. There were 10 cases of gonorrhea, 2 cases of bronchopneumonia and 2 cases of cellulitis. Gonorrhea was particularly well suited for a clinical trial of the efficacy of the oral administration of penicillin because of readily demonstrable bacteriologic evidence of cure.

In cases in which penicillin assays were done while under treatment, samples of venous blood were taken at the end of one-half, one, two and three hours. Also, in 7 instances, penicillin levels were assayed during a consecutive six hour period to demonstrate the incremental rise in the blood penicillin concentration resulting from the ingestion of a second capsule three hours after the first dose.

his associates¹⁵ administered 315,000 Florey units of penicillin orally to four groups of fasting patients in four different forms: (1) penicillin in water, (2) in corn oil, (3) in water preceded by magnesium trisilicate neutralization of the gastric acidity and (4) in a 4 per cent beeswax-peanut oil mixture. In each instance

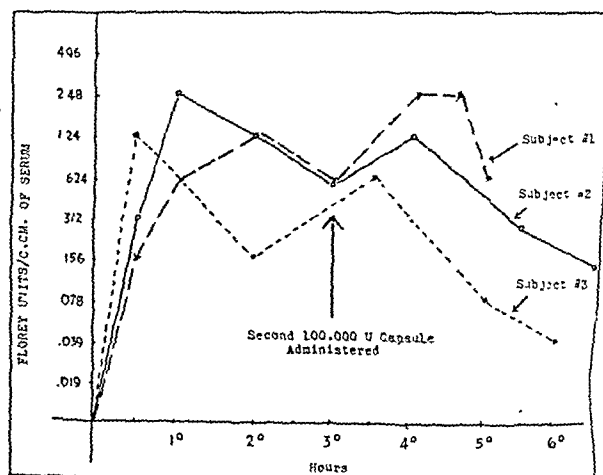


Chart 2.—Penicillin blood levels obtained in 3 children during a five to six and one-half hour period after a 100,000 unit capsule of penicillin. Note the concentration following ingestion of a second hours after the first dose.

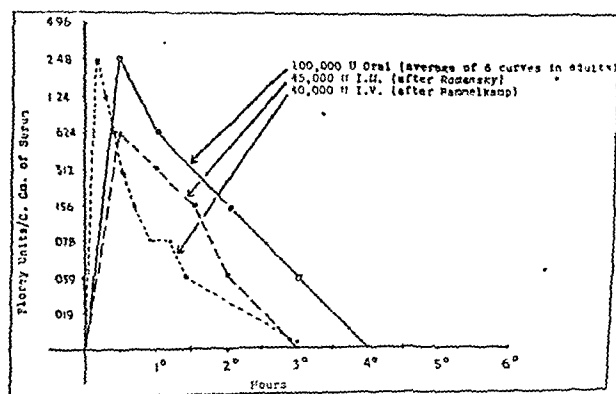


Chart 1.—Comparison of penicillin blood levels after oral and parenteral administration.

Penicillin content was determined according to the method of Rammelkamp,¹⁴ using beta hemolytic streptococcus 203 as the indicator organism. Blood samples after withdrawal were immediately placed in the icebox and usually run within three or four days. It is advisable to assay the blood sample for penicillin content as soon as possible, since a certain amount of destruction occurs on standing, thus vitiating the accuracy of the level.

STANDARDIZATION OF PENICILLIN BLOOD LEVELS AFTER ORAL ADMINISTRATION

In a preliminary report on the oral administration of penicillin,⁹ single 100,000 unit capsules were given to normal adults. The average of six serum penicillin concentration curves obtained in these subjects are represented in chart 1 and comparison is made with the curves obtained after parenteral administration of between 40,000 and 45,000 units observed by Rammelkamp² and Romansky.⁷ It will be noted that the levels achieved after oral administration compared favorably and in some respects surpassed those observed after parenteral injection of approximately one-half the amount of penicillin. By comparison, McDermott and

serum penicillin concentrations of from 0.312 to 1.25 Florey units per cubic centimeter were obtained for thirty to sixty minutes after administration. From these results McDermott recommended an oral dose five times the amount used in intramuscular therapy.

However, it will be noted in chart 1 that, when 100,000 units was given, a double capsule being employed as a mechanical protection, an average level of 2.49 Florey units per cubic centimeter was obtained at the end of one-half hour and therapeutic levels were still demonstrable in the blood stream three hours after administration. It is possible that the use of only approximately twice the parenteral dose with this method, rather than the fivefold dose recommended by McDermott to achieve comparable results, is due in no

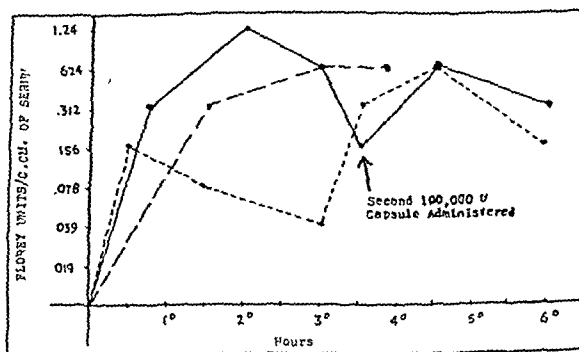


Chart 3.—Illustrating as in chart 2 the penicillin blood levels after ingestion of a 100,000 unit capsule and the increment obtained when a second 100,000 unit capsule is given at three hours.

small part to the use of mechanical protection for the penicillin afforded by a double gelatin capsule.

When 200,000 units as a single dose was given in a double capsule, higher levels of penicillin content in the blood were observed, ranging between 2.48 and 9.98

14. Rammelkamp, C. H.: A Method of Determining the Concentration of Penicillin in Body Fluids and Exudates, *Proc. Soc. Exper. Biol. & Med.* 51:95 (Oct.) 1942.

15. McDermott, W.; Bunn, P. A.; Benoit, M.; DuBois, R., and Haynes, W.: Oral Penicillin, *Science* 101:228 (March 2) 1945.

units per cubic centimeter one-half hour after ingestion. Therapeutic concentrations were maintained with this dose between four and five and a half hours, suggesting that blood concentration and prolongation may be directly proportional to the dosage employed.

Similarly, in the following clinical evaluation, a characteristic of the curves obtained in patients under treatment, after the oral administration of 100,000 units in a double capsule, was the relatively rapid appearance of large amounts of penicillin in the blood stream (charts 2 and 3). In the majority of instances the highest titers were observed in the first thirty to ninety minutes after ingestion, indicating prompt absorption from the small bowel. In 2 cases a somewhat delayed rate of absorption was obtained, as indicated by the appearance of a maximum concentration after two hours. Subsequent levels showed decreasing amounts during the next two hours. A feature common to all the curves was the continued presence of therapeutic serum levels of penicillin three hours after the ingestion of a 100,000 unit capsule. The highest penicillin serum levels ranged between 0.624 and 2.48 Florey units with one exception, when 0.156 unit was recorded. As may be noted in charts 2 and 3, the ingestion of a second

of oral penicillin could be calculated on the basis of weight. Further investigation is contemplated to establish the optimal dose by this method in both age groups.

In none of the cases included in this report were any objective or subjective symptoms of toxicity noted even after these relatively large doses. In 1 case, not included in this series, a total dose of 11,500,000 units was given over a period of fourteen days without toxic effect.

This method of administering penicillin has a wide range of applicability, especially in older children and adults. However, in some of the younger children it was necessary to place the capsule in the esophagus because of their inability to swallow the capsules spontaneously.

CLINICAL TRIALS

Gonorrhea.—Many reports have appeared in the recent literature concerning the efficiency of penicillin in the treatment of gonorrhea in adults. Observations on the value of penicillin for the treatment of this infection in children have been less numerous but equally satisfactory. There is general agreement that this drug is the most efficacious single agent for the management of this disease. It is curative for chemoresistant strains

Details of Treatment

Case	Sex	Race	Age, Years	Individual Dose of Oral Penicillin, Units	Dosage Schedule	Total Dose, Units	Interval Before Negative Culture, Hours	Days Negative	Comment
1	Q	W	4	100,000	Every 3 hours	300,000	12	4	Failed to respond to 200,000 units; subsequently cured with 300,000 units; 4 negative smears and cultures; no further clinic visits after discharge
2	♂	N	6	100,000	Every 3 hours	300,000	12	74	Failed to respond to 200,000 units; subsequently cured with 300,000 units; 6 negative smears and cultures
3	Q	N	8	100,000	Every 3 hours	400,000	12	35	Relapse after 300,000 units; subsequently cured with 400,000 units; 5 negative smears and cultures
4	Q	N	4	100,000	Every 3 hours	400,000	24	46	Cured; 9 negative smears and cultures
5	Q	N	3	100,000	Every 3 hours	400,000	12	40	Cured; 8 negative smears and cultures
6	Q	N	3	100,000	Every 3 hours	400,000	12	28	Cured; 5 negative smears and cultures
7	Q	N	3	100,000	Every 3 hours	400,000	12	66	Cured; 6 negative smears and cultures
8	Q	N	2	100,000	Every 3 hours	400,000	12	36	Cured; 6 negative smears and cultures
9	Q	W	7	100,000	Every 3 hours	400,000	12	26	Cured; 6 negative smears and cultures
10	Q	N	3	100,000	Every 3 hours	400,000	6	24	Cured; 4 negative smears and cultures

100,000 unit capsule produced an incremental curve in the penicillin titer similar to the initial three hour curve.

It may be concluded that, when these capsules are administered every three hours, therapeutic concentrations can be maintained constantly throughout the course of treatment for all susceptible infections.

Rammelkamp and Keefer¹⁶ found that the degree of antibacterial action was in direct proportion to the concentration of penicillin in the serum and found the maximum effects against *Streptococcus hemolyticus* to be in concentration of from 0.019 to 0.156 Florey unit per cubic centimeter of serum. Against staphylococci slightly higher levels were necessary, at least 0.156 Florey unit being required for maximum effect. Gonococci and pneumococci are both rated as highly susceptible organisms.

A comparison between the penicillin levels in children and adults observed after the oral administration of 100,000 units in a capsule reveals no especial difference. Interestingly, the curves noted in the two groups were similar in regard to concentration and prolongation. Adequate explanation for this observation is lacking, since theoretically one might expect higher and longer sustained levels in children if the dosage

of gonococci and has the additional virtue of being relatively nontoxic.

The current mode of administering penicillin by the parenteral route complicates the management of an otherwise ambulatory disease. The development of an adequate method of giving the drug by mouth has particular merit in the treatment of this and many other ambulatory infections, since it makes possible its management in office practice. Details of the treatment of 9 cases of gonococcal vaginitis and 1 case of gonococcal urethritis in children ranging in age from 2 to 9 years are presented in the accompanying table.

In view of the well known unreliability of smears alone as diagnostic criteria of gonorrhea, all the cases showed both positive smears and cultures before institution of therapy. Clinical cure does not necessarily coincide with bacteriologic cure; the criterion employed as used in the table was at least four negative smears and cultures obtained over a period of from three to four weeks after termination of treatment. The adequacy of this observation period is in agreement with the report of Lapenta and his associates.¹⁷ These investigators noted in their observations of 113 cases of gonococcal urethritis treated with intramuscularly

16. Rammelkamp, C. H., and Keefer, C. S. Penicillin: Its Antibacterial Effect in Whole Blood and Serum for the Hemolytic *Streptococcus* and *Staphylococcus Aureus*. *J. Clin. Investigation* 22: 649 (Sept.) 1943.

17. Lapenta, R. G.; Weckstein, A. M., and Sarnet, H. The Inadequacy of a Standardized Dosage of Penicillin in the Treatment of Gonococcal Urethritis. *J. A. M. A.* 128: 162 (May) 1945.

administered penicillin that not a single relapse occurred in a three month follow-up when three negative cultures were obtained over a period of twenty-one days.

The therapeutic index of this infection is directly proportional to several factors, viz. the sensitivity of the particular strain of gonococcus to penicillin, the duration of symptoms prior to starting treatment and the extent of the infection. In this regard there is a lack of unanimity of opinion in the literature regarding the optimal dosage of parenterally administered penicillin in the treatment of gonorrhea. Mahoney and his associates¹⁸ report only 74 per cent of cures after administration of 150,000 units intramuscularly. Lapenta¹⁷ reported 70 per cent cures with 100,000 units. These figures do not coincide with the greater percentage of cures reported by several other investigators who administered 50,000 to 100,000 units.¹⁹

In preliminary attempts to standardize the oral dosage required for gonorrhea, the first 2 patients treated were given 100,000 units at three hour intervals for two doses. However, this dosage failed to

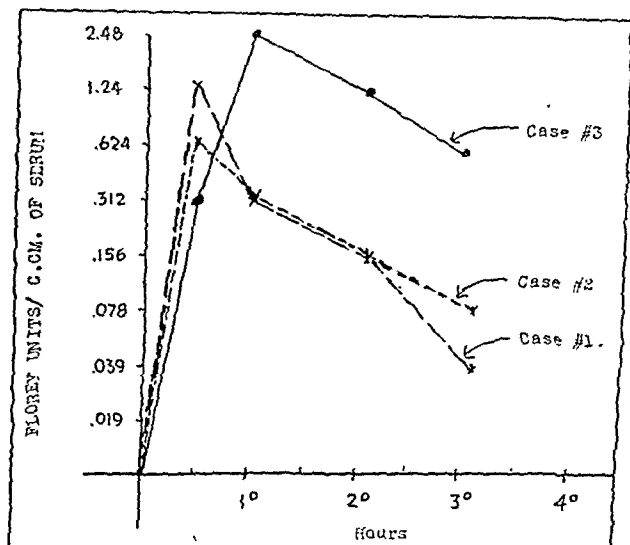


Chart 4.—Penicillin blood levels obtained during a three hour period after the administration of 100,000 units by mouth in 3 cases of gonorrhea in children.

effect a cure. Three days later these 2 patients received 100,000 units for three doses and were cured. Similarly, the next patient was given three doses of 100,000 units, following which three negative vaginal smears and cultures were obtained. She was then discharged from the hospital but, ten days later, a follow-up smear and culture proved to be positive and a second course of oral penicillin consisting of 100,000 units every three hours for four doses was given with successful results. Following these preliminary reversals, it was clear that either the total dose of penicillin administered was insufficient or that treatment should have been continued for a longer time. It was therefore deemed

advisable to adopt arbitrarily a schedule consisting of 100,000 unit capsules given at three hour intervals for four doses. After the selection of this regimen no relapses occurred in the subsequent 8 cases.

The minimal dosage of oral penicillin for the treatment of this infection cannot be categorically defined. It is likely that cures could have been effected in the majority of cases with less than 400,000 units, especially if smaller single doses were given for a longer sustained period of treatment. However, it is believed that the employment of a larger dose than is considered necessary for every case would insure against symptomatic cures with the production of chronic carriers and prevent an increase in resistance of the strain of organism to subsequent treatment. It is clear that a much larger series of cases must be treated before any definitive statement can be made regarding the optimal oral dose.

Reference to chart 4 illustrates the penicillin concentrations obtained in 3 of these patients who were followed with serum levels during the course of treatment. In the curve obtained in subject 1, after oral administration of the first 100,000 unit capsule the blood concentration rose rapidly, attaining a maximum concentration of 2.49 Florey units per cubic centimeter at the end of one hour; after three hours a level of 0.624 Florey unit per cubic centimeter was still demonstrable. In subjects 2 and 3, maximum levels of 0.624 and 1.24 Florey units per cubic centimeter respectively were obtained one-half hour after oral administration of the 100,000 unit capsule, followed by a moderately rapid parallel fall in both instances with 0.078 and 0.039 Florey unit per cubic centimeter still present after three hours. It will be noted that in all three curves the penicillin levels taken at frequent intervals during the three hour period were all well within or above the therapeutic range of penicillin against gonococci. The degree of antibacterial action of penicillin has been shown to be directly related to the concentration of penicillin in the blood; as previously noted, the maximum effects of penicillin against gonococci are obtained when blood concentrations range from 0.019 to 0.156 Florey unit per cubic centimeter.

Reference to charts 2 and 3 illustrate the incremental elevations obtained when a subsequent 100,000 unit capsule is given at the end of three hours. It may be inferred that similar rises in the penicillin blood levels would be present with each additional three hour dose. From this one may postulate the presence of therapeutic concentrations at any instant throughout the nine or twelve hour period during which therapy is maintained.

As noted in the table, a bacteriologic cure was effected within six to twenty-four hours after the institution of therapy with the majority of cases showing no organisms after twelve hours.

A rather consistently close parallel in the serum penicillin values at comparable intervals in both children and adults was observed following the ingestion of 100,000 unit capsules even though on a theoretical basis some disparity in the penicillin concentrations might be expected when identical dosage is given to the two age groups. Although the cures reported here deal with gonorrhea in children, the employment of the same schedule of 100,000 unit capsules given every three hours for four doses would probably be similarly efficacious. However, this remains to be proved by clinical trial in a series of gonorrhea in adults.

18. Mahoney, J. F.; Ferguson, C.; Buchholtz, M., and Van Slyke, C. J.: *Am. J. Syph. Gonorr. & Ven. Dis.* 27: 523 (Nov.) 1943.
19. Craig, W. M.; Thompson, G. J.; Hutter, A. M.; Barksdale, E. E.; Pfeiffer, C. C., and Woolley, P. V., Jr.: *Penicillin: A Progress Report*. U. S. Nav. M. Bull. 44: 453 (March) 1945. Fox, H. J.: *Penicillin Program at the United States Naval Hospital, Portsmouth, Va.: Observations and Results*, *War Med.* 7: 170 (March) 1945. Dunfield, V. M., and Mandel, A.: *Penicillin—The Rapidity of Its Effect in the Treatment of Gonorrhea*, *New York State J. Med.* 45: 614 (March 15) 1945. Neilson, A. W.; Chard, F. H.; Hanchett, L. J.; Ayers, E.; Stepieta, C. T., and Rodriguez, J.: *Penicillin in the Treatment of Syphilis and Gonorrhea*, *South. M. J.* 38: 204 (March) 1945.

Pneumonia.—Two cases of pneumonia were treated by the oral administration of penicillin. Case summaries follow:

CASE 1 (chart 5).—J. B., a Negro girl aged 7 years, was admitted to Children's Hospital with a history of fever, chills and productive cough of six days' duration. Two days after the onset of illness she was seen by her local physician and was given 2 Gm. of sulfadiazine a day. Therapy was continued during the subsequent four days without any improvement being noted. On entry into the hospital, sputum examination revealed pneumococcus type XIV, and an x-ray of the chest confirmed the clinical impression of right lower lobe pneumonia. Blood culture was negative. Oral penicillin therapy was started and consisted of 100,000 unit capsules every three hours for ten doses, totaling 1,000,000 units.

Twelve hours after the initiation of treatment, her temperature dropped precipitously from 105 F. to 98.4 F. and she remained afebrile during the remainder of her hospital stay. This was followed by clinical evidence of resolution of the pneumonic process during the next two to three days. A chest film taken three days after termination of therapy was negative. Likewise the white blood cell count dropped from an initial 23,000 on entry to 5,400 within two days, and pneumococcus organisms were no longer demonstrable in the sputum after forty-eight hours.

Six samples of blood were taken over a consecutive six hour period while the patient was under treatment and assayed for penicillin content. As may be noted in chart 5, adequate amounts of the drug promptly appeared in the peripheral blood after the ingestion of the capsule and was maintained for three hours. When the second capsule was taken at the end of three hours, therapeutic concentrations were maintained and prolonged for another three hour period. The amounts present

ished breath sounds over the right lower lobe. X-ray examination showed an infiltrative lesion in the right base indicative of pneumonia. Two sputum cultures showed *Staphylococcus aureus* hemolyticus.

The patient was given 100,000 units of penicillin orally every three hours for eight doses, totaling 800,000 units, with a defervescence of fever from 103.8 F. to 97.4 F. twelve hours

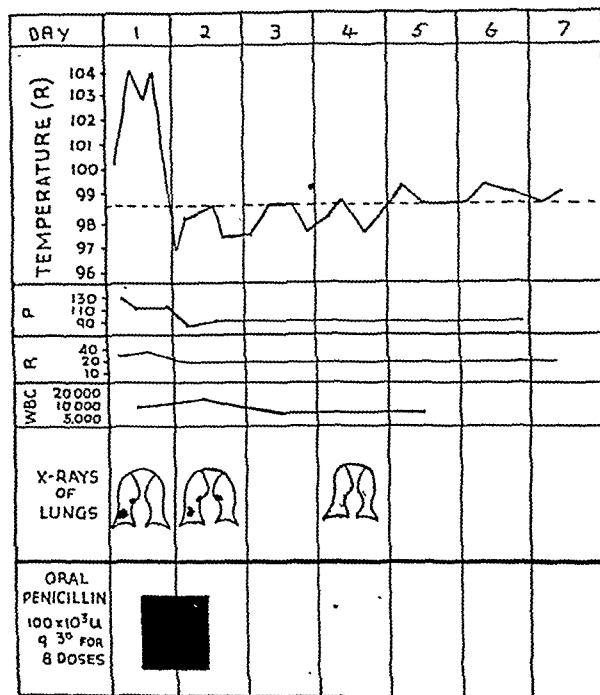


Chart 6.—Observations in case 2.

after the initiation of therapy. The temperature remained normal, with resolution of clinical and x-ray signs in three days (chart 6).

Further trials of oral penicillin therapy for the treatment of pneumonia are now under way. As in the management of gonorrhea, the establishment of an optimal oral dose necessitates an extensive clinical evaluation. In the reported 2 cases, 800,000 and 1,000,000 units given over a period of twenty-four and thirty hours produced a rapid response and cure.

Cellulitis.—Two cases of cellulitis of the face were treated with oral penicillin. One patient, a boy aged 11 years, had an extensive involvement of the left side of his face and neck secondary to an infected tooth. He was given 100,000 unit capsules every three hours for twelve doses and showed a prompt effective response, with rapid subsidence of inflammation and swelling in forty-eight hours. The second patient, a child aged 7 years who had periorbital cellulitis associated with suppurative ethmoiditis, also received a thirty-six hour course of oral penicillin consisting of 100,000 units every three hours. A similar prompt recovery ensued forty-eight hours after the initiation of therapy.

CONCLUSIONS

1. Adequate therapeutic blood concentrations of penicillin after oral administration can be obtained when the drug is protected against inactivation by gastric acidity. A method of providing this protection by the use of a double gelatin capsule hardened by formaldehyde-alcohol immersion together with prelimi-

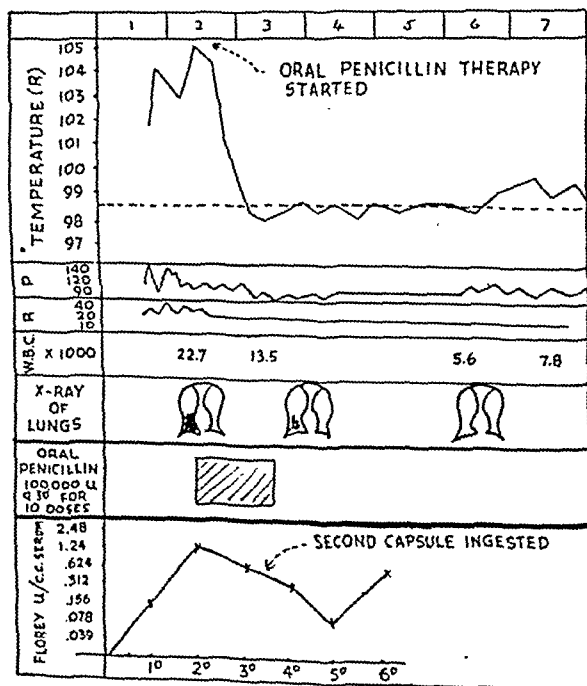


Chart 5.—Observations in case 1.

ranged between 0.078 and 1.24 Florey units per cubic centimeter during this interval.

CASE 2 (chart 6).—R. H., a Negro boy aged 7½ years, was admitted with the chief complaints of abdominal pain and fever. The temperature on admission was 100.4 F., rising four hours later to 104 F. Pronounced dyspnea, with splinting of the right side of the thorax, was noted. Examination of the chest revealed dullness on percussion, crepitant rales and dimin-

nary neutralization of the hydrochloric acid in the stomach was adopted.

2. Administration of a 100,000 unit capsule every three hours by this method provides constant therapeutic penicillin levels well within or above the effective antibacterial range of most susceptible organisms throughout the course of treatment.

3. A clinical trial of this method on 10 children with gonorrhea, 2 with pneumonia and 2 with cellulitis resulted in prompt recovery.

4. The relatively large doses of penicillin employed produced no toxic manifestations.

BORIC ACID

A DANGEROUS DRUG OF LITTLE VALUE

E. H. WATSON, M.D.

ANN ARBOR, MICH.

Many indispensable drugs are known to be dangerous when used in improper dose or by unusual routes of administration—digitalis, iodine and others immediately come to mind as illustrations. Certain toxic drugs—arsenicals, for example—continue in use because of their effectiveness and because nontoxic substitutes of proved effectiveness are lacking. It cannot sensibly be argued that an effective drug should be dropped from use simply because the occasional patient reacts unfavorably to the ordinary dose or because untoward reactions follow the accidental administration of an excessive dose. When, however, a drug can be shown to be almost entirely ineffective and at the same time dangerous even when used in ordinary ways, it is time to remove that drug from general use as rapidly as possible. Boric acid is such a drug.

Search of medical literature reveals many instances of accidental poisoning with boric acid and not a few following its calculated use in ointment and powder form.¹ Fatal poisonings have been reported following the placing of boric acid powder into wounds and boric acid solution into the bladder,² the empyema cavity³ and the bowel,^{3a} and unreported instances of death following its use in the stomach in gastroscopy have come to our attention. Both the powder and the solution have caused death when they were accidentally administered in food. A recent occurrence of this kind, according to newspaper reports, involved poisoning of 19 infants in a New Jersey hospital, with fatal results in 4. At about the same time Dr. R. R. Cross, director of public health of Illinois, requested hospitals to eliminate boric acid from the inventory of drugs kept on hand for use in maternity divisions.⁴ This request is reported to have followed the death of 2 infants in an Illinois hospital, attributed to boric acid poisoning. Boric acid

preparations were removed from use in the children's ward of University Hospital (Michigan) several years ago following the fatal poisoning of an infant:

A. B., a white boy aged 4½ months, was admitted to the hospital because of very severe infantile eczema. Almost all of the body was involved in a typical, acute cracking and weeping eczema. Except for this the infant showed normal growth and development, and physical examination revealed no other deviation from normal.

Initial treatment consisted in continuous warm wet dressings of saturated boric acid solution applied to the entire body. The infant was restrained to prevent scratching. Colloidal baths were given twice daily. By the second day of this treatment the skin had improved considerably, several areas being ready for application of ointment. It was our custom then as now to use crude coal tar in 3 per cent strength, Lassar's paste being a commonly used base for the tar. Because one member of the staff had seen good results in treating less severe eczemas with boric acid ointment in another hospital, its use in place of tar ointment was decided on. Orders were to apply boric ointment twice daily to all inflamed areas which were not crusted or weeping. Only three general applications were made, a total amount of ointment somewhere between 60 and 100 Gm. being used. Twenty-four hours after the first application of boric acid ointment the temperature rose to 102 F. and two hours later the patient began having convulsions while receiving a colloidal bath. These convulsions lasted for about three hours, during which time the temperature rose to 107 F. They were controlled at the end of this time by codeine but were resumed again at intervals throughout the next few days. The most striking thing about the case during this time was the development of an intense and generalized erythema. This was so pronounced that the child was literally the color of a boiled lobster. Almost from the beginning of the convulsive seizures the eyes were wide open and staring but they did not follow a light, the corneal reflex was present, and the ocular fundi were normal. It was evident that he soon became deaf.

During the course of the week following the onset of convulsions the seizures gradually became fewer. Between convulsions the child apparently existed in a vegetative state. It was in a deep coma from which it could not be aroused. It remained in this condition until the time of its death, which occurred approximately three weeks after the onset of convulsions. Intravenous glucose, blood transfusions, feeding by gavage and other types of supportive treatment were tried, the only result being that the child remained alive.

Shortly after the first convulsion a lumbar puncture was done. This revealed an increase in pressure of the spinal fluid, 3 cells, total protein of 113 mg. per hundred cubic centimeters, 4 plus globulin and a colloidal gold curve of 000110000000. Lumbar punctures at one week and two weeks after the onset of convulsions were essentially normal, the cell count in 1 instance being 5 and the other not recorded.

Diagnosis of boric acid poisoning was first made when it was noted by a member of the staff on the second day following the onset of convulsions that the child resembled and behaved in a manner similar to 3 infants accidentally poisoned with boric acid solution in a New York hospital. In this instance 3 infants were given saturated boric acid solutions (parenterally) by mistake when it was intended to give isotonic solution of sodium chloride. All of these infants died, the most remarkable thing being the *boiled lobster* appearance of the skin. Practically all reports of boric acid poisoning which have appeared in the literature have remarked about this significant feature. Accidental poisoning similar to that in the New York hospital also occurred in a Chicago hospital infants' ward about twenty years ago. In this instance several infants were given boric acid solutions by mouth and nearly all of them died. This was not reported in detail in medical literature, but reports of the pathologist's examination at the postmortem have been published.⁵

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5. McNally, W. D., and Rust, C. A.: Distribution of Boric Acid in Human Organs in Six Deaths Due to Boric Acid Poisoning, *J. A. M. A.* 90: 382 (Feb. 4) 1928.

Tests for boric acid on the spinal fluid and urine of our patient were strongly positive on three occasions but were no longer positive after one week. The turmeric test for boric acid was used.⁶

As already stated, the patient remained alive for approximately three weeks following the onset of the boric acid poisoning. During this time several spinal fluid examinations and other clinical observations indicated the absence of infection. However, on the third day preceding death there was an elevation of temperature, and a lumbar puncture done two days before death revealed a spinal fluid cell count of 185. Autopsy was obtained which showed the final cause of death to be lobular pneumonia and purulent meningitis (pneumococci). Other postmortem diagnoses were generalized septicopyemia, fatty atrophy of the liver, extensive cloudy swelling of the kidneys and exfoliative dermatitis of the face and neck. It seemed quite clear that the pneumococcosis found at postmortem examination was a terminal invasion.

Our primary diagnosis of boric acid poisoning in this case was based, not so much on the finding of boric acid in the spinal fluid and urine of the patient, for we were subsequently able to show that the boric acid saturated dressings applied to a very small area of excoriation was sufficient to give a positive test for boric acid in the urine when an alcohol solution of turmeric was used, but more on the fact that the patient's appearance, symptoms and clinical course resembled known cases of boric acid poisoning. We had applied fairly large amounts of U. S. P. boric acid ointment, possibly as much as 100 Gm. (containing 10 per cent of boric acid) to extensive areas of broken skin, which furnished ideal conditions for its absorption. Apparently sufficient had been absorbed to cause a fixed acidosis and irreparable damage to the central nervous system, immediate evidence of this damage being convulsions, blindness and deafness and an increase in pressure and albumin in the spinal fluid.

COMMENT

With the advent of considerably more effective germicides, use of boric acid or its solutions has almost ceased. Probably the principal uses of boric acid or its solutions are in the eye and for irrigating body cavities. Both of these uses have been abandoned in the University Hospital. Boric acid solution as ordinarily used in collyria is probably without significant antiseptic or germicidal properties—many newer antiseptics are far superior to it. As a lavage to remove exudate (pus) from the eye a weak solution of sodium bicarbonate is much more effective.

Boric acid solution is widely employed by mothers of small infants in the care of the eyes. Freshly boiled and cooled water will do as well and has only the drawback of needing to be freshly prepared daily, whereas boric acid solution usually remains sterile on standing, though some organisms will survive in it for a significant time. Another use of boric acid solution is to cleanse the breasts of the mother before putting the infant to breast. Lembcke⁷ has clearly shown the danger of relying on the supposed bactericidal properties of boric acid solution in this connection. He has reported an outbreak of diarrhea in a newborn nursery and shown that the probable pathogenic organism was transmitted from infant to infant by way of the boric acid solution soaked cotton pledgets used to sponge the breast before feeding. In the early part of World War II boric acid ointment was officially suggested as a dressing for burned areas of skin. This suggestion was later withdrawn—a wise decision, it would seem, in view of the demonstrated ease with which the damaged skin may absorb drugs. In 1910 Rubin and

Donner⁸ called attention to the rapid absorption of boric acid from denuded areas such as burns.

The following quotations from recent editions of three widely used textbooks on pharmacology indicate the fallacy of depending on boric acid to act as a bactericide or a significant bacteriostatic:

Sollmann,⁹ speaking of boric acid and sodium borate (borax), says "These are fairly antiseptic, but not potently germicidal, and it is questionable whether they check bacteria under clinical conditions. They are not deleterious locally or systemically in the amounts ordinarily used, but larger doses are fatal."

Elsewhere Sollmann says "Death may result from the ingestion of 15 to 30 Gm. of borax or 2 to 5 Gm. of boric acid. This has occurred by intravenous injection of boric acid solution in mistake for saline or by similar mistakes in infant feeding. It may arise from local administration (van Dort Krom, 1906); especially from flushing cavities and from use of powdered boric acid on extensive burns (Savariaud, 1914)."

Edmunds and Gunn¹⁰ state that "boracic acid and its sodium salt have some antiseptic power, for in 2.5 per cent solution almost all forms of bacilli stop growing; but they are not destroyed, even the delicate anthrax bacilli being found capable of further growth after exposure to a 4 per cent solution for twenty-four hours. Boracic acid is therefore valueless as a disinfectant but has been used as an antiseptic dressing; it has the advantage over many other antiseptics of inducing very little irritation and of being only slightly poisonous, but experience has shown that it cannot be used with impunity in very large quantities. . . . Chemical examination of the organs in cases of fatal poisoning has shown that the largest amount of boracic acid is stored in the brain, which in turn is followed closely by the liver."

Goodman and Gilman¹¹ state that "boric acid is a very weak germicide, and certain organisms such as *Staphylococcus aureus* are not killed by long exposure to a saturated aqueous solution. However, aqueous solutions are effective in inhibiting bacterial growth. . . . Although it is not very toxic, serious poisoning can result from the ingestion of 5 Gm. of boric acid."

SUMMARY

A case of fatal boric acid poisoning following use of boric ointment U. S. P. in eczema was observed. Use of boric acid preparations should be discouraged because of their limited usefulness and the real dangers of their accidental and intentional use. The medical profession as a whole probably puts unwarranted confidence in boric acid preparations and is likely to forget that boric acid is a poison.

8. Rubin, J., and Donner, G.: Tödliche Vergiftung mit Kaliumpermanganat in Substanz, *Deutsche Arch. f. klin. Med.* 98: 267, 1909.

9. Sollmann, Torald: *A Manual of Pharmacology*, Philadelphia, W. B. Saunders Company, 1942.

10. Cushny, A. R.: *Pharmacology and Therapeutics*, revised by C. W. Edmunds and J. A. Gunn, Philadelphia, Lea & Febiger, 1940.

11. Goodman, L., and Gilman, A.: *The Pharmacological Basis of Therapeutics*, New York, Macmillan Company, 1941.

Magendie.—Magendie's life also illustrates some of the qualities peculiar to men of science in any country—universal curiosity, tenacity of purpose, unceasing industry, willingness to admit error—and in addition he exhibited personal qualities of restlessness and a certain impetuosity which sometimes brought him into conflict with his contemporaries. These, after all, are human qualities which one somehow expects in men of commanding genius.—Olmsted, J. M. D.: *François Magendie*, New York, Schuman's, 1944.

6. For the method of determining boric acid in urine or spinal fluid see Kahlenberg, L., and Barwasser, N.: *J. Biol. Chem.* 79: 405 (Oct.) 1928.

7. Lembcke, P. A.: Quinlivan, J. J., and Orchard, N. G.: Epidemic Diarrhea of Newborn, *Am. J. Pub. Health* 33: 1263, 1943.

PAROXYSMAL TEMPORAL HEADACHE

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Within the past year I have treated 8 cases of headache so closely related from the standpoints of clinical manifestations and therapeutic response that a report seems warranted.

The characteristic picture was one of periodic attacks of throbbing pain in the right, left or both temporal regions radiating to the frontoparietal and postauricular areas. Although throbbing pain predominated and was frequently "unbearable," it was usually superimposed on a dull, constant ache in the involved parts. Attacks ranged in frequency from once a month to several times a week over a period of months or years, usually recurred in the same region (right or left temporal) and lasted from several hours to several days. Onset was abrupt, appeared any time during the day and was apparently unrelated to physical exertion or emotional tension.

Gastrointestinal manifestations were common but tended to accompany the headache rather than precede it. Scotomas, dizziness, facial flushing and rhinorrhea did not occur. Sensitivity to histamine by skin test was demonstrated in only 1 case.

Digital compression of the temporal artery on the affected side abolished the throbbing pain and most of the continuous dull ache. The point at which digital compression afforded maximum relief was located; the tissue about the segment of artery underlying the palpating finger was infiltrated with 2 cc. of 1 per cent procaine hydrochloride. This procedure effected complete disappearance of the throbbing and almost complete cessation of the dull aching pain. Periarterial infiltration with 2 cc. of isotonic solution of sodium chloride used as a control in all cases invariably failed to alleviate distress.

Relief was frequently obtained within one minute after periarterial block with procaine hydrochloride and lasted from several hours to several days. In the latter instance it is probable that the attacks were aborted rather than relieved by prolonged anesthetization.

Of the 8 patients, 5 with frequently recurring headache obtained complete remission following arterial section. Patients were followed postoperatively from two to eleven months. A general anesthetic was used in 3 instances and a local in 2. Arterial biopsy in 3 cases disclosed no abnormal changes in the vascular walls. Three patients whose attacks occurred less frequently preferred repeated block with procaine hydrochloride to surgical intervention.

REPORT OF CASES

CASE 1.—B. W., a white woman aged 21, single, referred by Dr. C. H. Weinberg on May 15, 1944, had been incapacitated by periodic headaches occurring two or three times a month to such an extent that for three years she had been unable to retain steady employment. The headaches were almost entirely limited to the temporal and parietal regions on the right side and were characterized primarily by a dull ache with exacerbations of sharp, shooting, throbbing pain lasting several hours. The duration of the attacks was from two to five days. Nausea occurred frequently, but there were no visual disturbances. During attacks the patient occasionally experienced a sensation of warmth on the involved side. At first the headaches usually appeared about the time of the

menstrual period but during the past year and a half occurred at any time.

Physical examination yielded essentially negative results. Routine laboratory studies failed to reveal any abnormality. The result of the skin test for histamine sensitivity was negative.

When first seen the patient had a headache of one week's duration. Pressure over the right temporal artery immediately obliterated the throbbing pain, leaving only a slight dull headache in the temporoparietal region. Periarterial infiltration with procaine hydrochloride completely relieved the pain for twelve hours, after which throbbing in the right temporal region recurred. Periarterial infiltration with saline solution had no ameliorative effect; infiltration with 2 cc. of 1 per cent procaine hydrochloride produced arrest of the pounding headache.

Ligation and section of the temporal artery performed by Dr. Sidney Copland on May 19 resulted in disappearance of the headaches to date.

CASE 2.—J. R. C., a white man aged 55, referred by Dr. Gilbert Anderson, had suffered from temporal headaches about two or three times a month for one year. Seizures lasted several hours and were readily abated by various "headache remedies." There were no other associated symptoms.

One such severe bilateral throbbing headache occurred on April 17, 1944; its intensity did not diminish during the next ten days, and the patient had not been able to sleep for several days. Nausea and vomiting complicated the picture. When seen in consultation on April 27 he was in obvious pain, restless, dehydrated and exhausted. He reiterated the statement "The headache is driving me crazy." Pain was located chiefly in the temporal region but radiated into the frontal, parietal and posterior auricular portions.

Physical examination disclosed nothing of importance; the blood pressure was within normal limits, the temporal arteries were tortuous, and visible pulsations were readily detected. Digital compression to obliterate the pulsation allayed throbbing on the affected side. Bilateral infiltration with procaine hydrochloride relieved all pain, but a mild, dull residual headache remained. The patient promptly fell asleep.

Cephalalgia gradually returned during the succeeding hours and reached its former peak intensity in twenty-eight hours, at which time saline infiltration failed to produce relief. Bilateral block with procaine hydrochloride again effected subsidence of the throbbing pain. Ligation and section of both temporal arteries was done by Dr. Gilbert Anderson on April 20, and the patient has been free from symptoms since that time.

CASE 3.—M. B., a white man aged 36, seen on Sept. 3, 1944, complained of periodic headaches for the past two and one-half years. They occurred chiefly on the right side, were throbbing in character and ranged in frequency from three to five attacks a month. On September 6 the patient was seen during a typical seizure and obtained relief from digital compression and periarterial infiltration with procaine hydrochloride. A subsequent attack three days later was again mitigated by the same procedure. On September 6 ligation and section of the right temporal artery was done; the patient has had no headaches since that time.

CASE 4.—B. R., a white woman aged 42, married, seen on Sept. 16, 1944, complained of a throbbing headache in the right temporal region occurring six to eight times a month for the last two years. Beneficial response was obtained from periarterial infiltration with procaine hydrochloride. Ten days later another attack again responded to periarterial infiltration, but the pain recurred about two hours after injection. The patient has had no headache since ligation and section of the right temporal artery, performed on Sept. 28, 1944.

CASE 5.—G. A., a white woman aged 27, married, consulted me on Jan. 15, 1945 because of right temporal headaches occurring ten or twelve times a month for a period of approximately three years. The attacks lasted from several hours to several days and were associated with nausea and vomiting. There were no other noteworthy symptoms. From time to time ergotamine tartrate had been used successfully.

The patient was seen during a characteristic attack on January 17 and responded promptly to digital compression and periarterial infiltration with procaine hydrochloride. On February 8 the patient appeared again for relief of a typical right temporal headache; alleviation was again secured by periarterial infiltration with procaine hydrochloride. Dr. Sidney Copland performed ligation and section of the right temporal artery on February 15, and cephalalgia has not occurred since that time.

In a study on the mechanism of migraine, Graham and Wolff¹ reported highly significant observations on 16 patients. They discovered a close relationship between the amplitude of pulsations in the extracranial arteries and the intensity of the headache. Reduction in the amplitude of pulsations in the temporal artery (during an attack) by the administration of ergotamine tartrate or by digital compression diminished or abolished the headache. In 4 patients the pain was limited to the distribution of the temporal and occipital arteries and could be completely abolished by digital pressure sufficient to obliterate arterial pulsation.

Other branches of the external carotid artery may be involved. Dickerson² pointed out that in certain cases the migraine could be abolished by ligation and section of the middle meningeal artery on the affected side. Patzer, Derbes and Engelhardt have obtained relief in certain cases of migraine by periarterial infiltration with eucupine and procaine hydrochloride.³

Six of the 8 cases in this series had previously been diagnosed as "migraine" on the basis of periodic attacks of intense hemicranial cephalalgia, accompanied by nausea and occasionally by vomiting. It is not surprising that none of the patients had visual disturbances, since the end-organ artery was extracranial. Cases of "migraine" involving arteries other than the temporals have been omitted from this series.

Selection of cases of paroxysmal temporal headache was made on the basis of a typical history of periodic throbbing headache limited to the distribution of the temporal artery and its main branches, with relief by digital compression of the artery and by periarterial infiltration with procaine hydrochloride. In order to test adequately the criteria for selection the patient should be seen at the peak of an attack. If relief is obtained on two or more occasions by infiltration with procaine hydrochloride (with control saline injections) ligation and section of the affected temporal artery seems justified. Injection with procaine hydrochloride between attacks is ineffectual. The results reported in this paper seem to indicate that this particularly distressing headache is amenable to surgical intervention, with the possibility of prolonged or permanent cure. There is no evidence to date (two to eleven months postoperatively) that the factor or factors inducing segmental arterial dilatation in the surgical cases are predisposed to affect other extracranial vessels of these patients.

SUMMARY

Operative intervention has been successful in the abolition of paroxysmal temporal headache in 8 cases for the observed period of two to eleven months postoperatively. Cases of "migraine" satisfying the criteria may benefit from operation.

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RECENT FRACTURES OF THE CARPAL SCAPHOID

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Fractures of the carpal scaphoid offer a great challenge to the surgeon, for on his skill in diagnosis and treatment rests the ultimate functional result. The treatment of recent fractures of this type is almost a solved problem, as shown by the many studies of end results in the last few years. But too many surgeons fail, either because they are not vigilant in noting and following the most minute details in diagnosis and treatment, or because they experiment with methods which are not founded on sound anatomic principles.

DIAGNOSIS

This fracture must be diagnosed immediately after the injury, and failure to do so is one of the main causes of nonunion. A note of warning must be given about diagnosis of so-called severe sprain of the wrist, too often made because of negative roentgenograms, and it is a good working rule to deny its existence. Injuries to the semilunar or scaphoid often simulate this condition and thus fail to be recognized, and since precious days are allowed to pass without the instituting

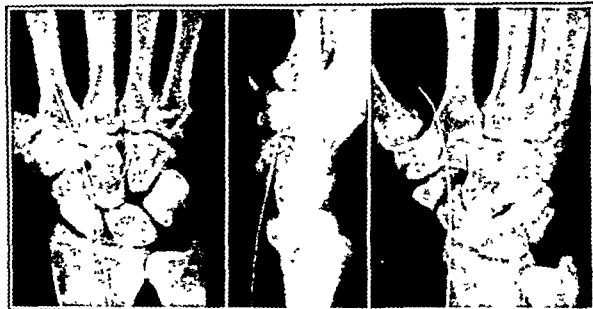


Fig. 1.—Experimentally produced fracture of the carpal scaphoid in a cadaver. A wire has been threaded through the flexor pollicis longus tendon. These views show the intimate relationship of this tendon to the scaphoid, particularly to the area of the tubercle. In these specimens any movement of the interphalangeal joint of the thumb produces a definite change of position of the fractured fragments. The tendon passes beneath the transverse carpal ligament and entering the osseoponeurotic canal, of which the scaphoid is a wall, then passes distally to be inserted in the distal phalanx of the thumb. Note that in the anteroposterior view the fracture is not visible, whereas in the oblique view it is readily seen.

of correct treatment the surgeon's oversight may be, to the patient, an economic catastrophe.

A history of a fall on the outstretched hand, tenderness in the anatomic snuffbox and pain there on percussion of the fully extended thumb should be almost conclusive evidence. Should the initial x-ray fail to show the fracture, the clinical findings should be used as presumptive evidence, and the only course to be followed is immobilization of the wrist for a period of three weeks. After this, should radiographic studies again be negative, the patient's ligamentous injury will have been helped by rest, and if, as so often happens, the films show a bone injury, he is already started in the proper path of healing.

Certain precautions in taking the x-rays are desirable. For careful comparison with the uninjured wrist, lateral views should be taken with the two wrists in the same position, and this can best be attained by putting the palms together with the fingers pointing forward in a "praying position." The posteroanterior views must always be taken in complete ulnar flexion, as in this position the long axis of the scaphoid is visible; and at

1. Graham, J. R., and Wolff, H. G.: Mechanism of Migraine Headache and Action of Ergotamine Tartrate, *Arch. Neurol. & Psychiat.* 39: 737 (April) 1938.

2. Dickerson, D. G.: Surgical Relief of the Headache of Migraine, *J. Nerv. & Ment. Dis.* 77: 42, 1933.

3. Patzer, R.; Derbes, Vincent, and Engelhardt, H. T.: Personal communication to the author.

least two obliques are needed to complete the study, with the palmar and dorsal surfaces of the wrist alternately next to the plate. Not only should the most minimal fractures be searched for, but the surgeon must also be alert for any slight malposition of the fragments. As in other fractures, careful anatomic reduc-



Fig. 2—Axial view of the wrist taken in full dorsiflexion. This shows well the volar osseoponeurotic canal. The wire threaded through the tendon of the flexor pollicis longus is shown to be in intimate contact with the scaphoid.

tion is important, although in this injury it is frequently neglected because of the difficulties in interpreting the lateral films. Of certain clinical varieties of scaphoid fracture which may occur, an infrequent but easily treated type is an extra-articular fracture involving the tubercle. The most common injury is a fracture of the body, which may be linear or may show some displacement or angulation. Occasionally severely comminuted fractures are encountered; but these are more commonly associated with other carpal injuries. Fractures involving a small part of the proximal pole should be differentiated, because in this type the blood supply is poorest and the prognosis therefore is least favorable. The excellent work of Oblatz and Halbstern¹ on the blood supply of the carpal scaphoid showed that there was considerable variation in the distribution of the arterioles but that the majority of these were located distally and the fractures through the waist of the bone could interrupt the blood supply in about one third of the cases.

A large number of patients sustain this fracture by falling on the outstretched hand with the wrist in dorsiflexion. The force strikes the heel of the hand and is transmitted to the scaphoid, which may break over the radial styloid. But there is another mechanism of injury which may explain the close association of this injury with luxation of the semilunar. The scaphoid acts as a bone bridge across the junction of the proximal and distal carpal rows, so that any abnormal motion taking place between the semilunar and os magnum is checked by the scaphoid, and, as the force increases, the scaphoid must either break its body or tear the intra-articular ligaments attaching it to the semilunar, producing the not infrequent rotational shift without fracture.

This second mechanism is well illustrated by the so-called perilunar dislocation of the wrist with scaphoid fracture.

TREATMENT

In 1928 I reported a method of treatment of fractures of the carpal scaphoid which has now had ample trial, and its efficacy has been proved by a large number of reports by various workers.² Because at times certain phases of this method have been misinterpreted, and because certain slight improvements in technic have been acquired, it is believed that a detailed description of the present status of the method is indicated.

Treatment of each type of fracture must be individualized. Fracture of the tubercle offers little difficulty, since the bone in this area is covered by periosteum and is well vascularized. This is a rare lesion and usually of isolated occurrence. Full healing should take place in three to four weeks by simple immobilization of the wrist.

In treatment of fractures through the body, the first step should be to determine accurately whether any displacement is present. The lateral film should be carefully studied for angulation. In the presence of displacement, reduction can be obtained by traction on the thumb while the snuffbox is molded by the surgeon's fingers. Once alignment has been attained, the fragments can be impacted and properly immobilized by placing the wrist in full radial flexion with 20 to 30 degrees dorsiflexion and pressing the base of the thumb just below its proximal crease into full abduction. Technically it is preferable to perform this movement by placing the heel of the operator's hand on the same area of the patient's hand as demonstrated in figure 3. By this method full abduction of the thumb metacarpal is attained while the metacarpophalangeal and interphalangeal joints are allowed to remain in flexion, which is important because this position allows function to return more rapidly when immobilization is discon-



Fig. 3—Two views illustrating maneuver for manipulating the wrist into correct position of full radial flexion, 20 to 30 degrees dorsiflexion of the wrist with the base of the thumb in full abduction but its metacarpophalangeal and interphalangeal joints relaxed in slight flexion, the heel of the physician's hand pressing against the heel of the patient's hand.

tinued. It is imperative that ulnar flexion should be avoided, because in this position the scaphoid leaves its facet in the articular surface of the radius and moves

¹ Oblatz, B. E., and Halbstern, B. M. *J. Bone & Joint Surg.* 20: 424-428, 1938.

² Soto Hall, R., and Haldeman, K. O. *J. Bone & Joint Surg.* 16: 822-828, 1934, 23: 841-850, 1941. Jones, J. N., and Russell, J. Study of 57 Cases at R. A. F. Hospital, Raunceby, England, personal communication to the author. Oblatz, Benjamin. *Surg., Gynec. & Obst.* 78: 83-90, 1944. Dickson, J. C., and Shannon, J. G. *ibid.* 79: 225-239, 1944. Meekison, D. M. *J. Bone & Joint Surg.* 27: 80-85, 1945.

distally and radialward, the fractured surface tending to separate because the proximal fragment remains attached to the semilunar by the interosseous ligaments. On the other hand, in radial flexion the fragments closely approximate, especially when abduction of the thumb is added to this position. This can be readily



Fig. 4.—Arrow points to proper site of pressure and correct position of the hand, wrist and thumb.

demonstrated by producing experimental fractures in cadavers or by roentgenographic studies in the living.

In the anteroposterior plane, dorsiflexion at 30 to 40 degrees has been experimentally proved by Berlin³ to be an ideal position. Warning must be given about the use of too much dorsiflexion, because this may lead to anterior angulation of the fracture with eventual malunion.

Proper immobilization of the thumb is important for several reasons:

1. By its inclusion more complete fixation of the wrist can be attained.

2. Any active movement of the thumb involves the long flexor tendon and the abductor pollicis. The latter often originates in the tuberosity of the scaphoid, so that abduction of the digit produces motion in the distal fragment. The close relationship of the long flexor to the scaphoid can be shown by noting its anatomic position and by noting movements in experimentally produced fractures, when it can be shown that motion of the interphalangeal joint alters the relation of the fracture surface (figs. 1 and 2). Further confirmation can be obtained by asking the patient with recent fracture to flex actively the interphalangeal joint; this movement will produce severe pain.

3. Correct immobilization of the thumb avoids disability because, in application of the cast, care must be taken to force the thumb into abduction at its base rather than at its tip, since the latter procedure leads either to strain or to subluxation of the metacarpophalangeal joint. In this strained position recovery of function takes place much more slowly. The metacarpal, therefore, should be abducted, and the thumb should be relaxed in slight flexion (figs. 3 and 4).

TECHNIC OF PLASTER SPLINT

An anterior skin-tight plaster splint is first applied, and then one layer of circular flannel bandage is wrapped around the extremity. This is followed by a circular plaster splint. It is important that the plaster be carried as close to the elbow as possible and still allow full flexion of this joint, and, as previously mentioned, the plaster should extend to the middle of the thumb nail and to the metacarpophalangeal joint of the fingers. Mobilization of this area in scaphoid fractures will not produce the stiffness one always notes following Colles' fractures.

PERIOD OF IMMOBILIZATION

Early and rapid healing will take place in fractures of the tubercle of the scaphoid. In this infrequent extra-articular fracture, position of the wrist is not of consequence. On the other hand, fracture through the waist is the most common, and in this type correct and adequate immobilization is very important. Immobilization should be complete and undisturbed for at least nine to ten weeks; a large percentage of fractures will heal in this time, but four to five weeks longer may be necessary. Roentgenograms and clinical examinations should determine whether this further immobilization is



Fig. 5.—Method of holding hand while plaster is drying. Note that splint is carried to the metacarpophalangeal joints of the fingers and to the level of the middle of the thumb nail. No pressure is put on the tip of the thumb.

desirable. The presence of local tenderness in the anatomic snuffbox, or pain on percussion on the tip of the thumb, associated with inconclusive radiologic evidence of union, should warrant further immobilization. Sometimes the clinical evidence of union will appear before it is demonstrated in the x-ray.

³ Berlin, David. *New England J. Med.* 201: 574-579, 1929.

Certain authors have recommended prolonged immobilization, sometimes as long as twelve to eighteen months. I do not concur with this policy, because 95 per cent of cases will have united in four to five months and when union is delayed beyond that time there are certain complications which should be treated surgically rather than by further splinting. These are malposition of the fractures, interposition of strong fibrous bands, aseptic necrosis or an uncontrolled very small fracture of the proximal pole. In the latter injury, in which only the sixth or seventh body of the scaphoid is involved, an excision of the small fragment, if three months' splinting fails, results in better function than very prolonged immobilization.

When fractures of the scaphoid are associated with luxation of the semilunar, which occurs in about 12 per cent of the cases, the wrist must of necessity be held in slight volar flexion for the first four weeks. If it is placed in dorsiflexion in order to treat the scaphoid fracture, the semilunar may redislocate.

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IATROGENIC HEART DISEASE

A COMMON CARDIAC NEUROSIS

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AND

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In a recent publication Gillespie¹ said "There is a chapter omitted from medical textbooks which might be headed 'Iatrogenic (Gr. iatros, doctor) Diseases'; that is to say, diseases produced by doctors. It is not well enough realized that it is dangerous to give a label to a set of symptoms of disease until you are convinced that it is the right one. If a syndrome is psychologically produced (which of course the patient does not know) and if the doctor also does not know this and calls it gastritis because the patient complains of indigestion, or a weak heart because he complains of breathlessness or precordial pain, or even if he attaches to it some cabalistic letters, such as D. A. H., then he has implanted a suggestion in the patient's mind which fixes his anxiety in a way which, if not quite indelible, is at any rate very hard to undo."

While the advance of clinical knowledge has definitely limited the scope of iatrogeny, it must be admitted that incorrect medical diagnoses are still far from uncommon. In our psychiatric experience we have seen patients whose symptoms had been incorrectly diagnosed by physicians as evidence of pathologic processes in nearly every bodily system. However, one system—the cardiovascular—has been predominant. In 1926 Viko² described cardiac neuroses initiated by physicians in cases of organic heart disease. In 1929 Kilgore³ described cardiac neuroses with no pathologic findings initiated by physicians. Oille⁴ has summed it up well by stating that almost 60 per cent of patients who consult a cardiac specialist are suffering from either an exaggerated or a wholly unnecessary anxiety about their hearts, arising from suggestion and not based on reason, most of the

suggestions following the careless or ill considered remarks of doctors.

From time immemorial the heart has been the traditional seat of the emotions and hence acts as the focal point of anxiety. The anxiety neurosis in its varying degrees, according to Weiss,⁵ is probably the most frequent disorder of civilized life. It has long been known that anxiety attacks produce disturbances of cardiac function such as palpitation, arrhythmia and tachycardia, also disturbances of respiration and other body systems, yet not always accompanied by recognizable anxiety. The presence of cardiac symptoms directs attention toward the heart. The psychic reaction to doubt concerning the integrity of the heart, Conner⁶ has said, seems to be much more violent and profound than is the case with any of the other internal organs. Most persons who would accept with considerable equanimity the knowledge that they had some disease of the liver or kidneys or lungs will have their morale sadly shaken by any evidence that the heart is not functioning properly. In the minds of most laymen the thought of heart disease is still associated with the idea of sudden and unforeseen death. We are reporting some cases from our records to show how errors of commission or omission by the physician have resulted in patients with varying degrees of incapacity and disability, owing to concern regarding their hearts. It is our hope that an awareness by the medical profession of this condition will lead to more careful management of predisposed individuals and great savings in time, money and mental anguish.

Conner has outlined the four groups of causes which may act as the precipitating events for the development of cardiac neurosis: (1) the statement of some physician or life insurance examiner that the heart shows *some abnormality*, (2) the occurrence of some dramatic case of heart disease (such as sudden death) among relatives or friends of the patient, (3) the appearance of symptoms calling attention to the heart, such as sudden pain or a skipped beat, and (4) some profound and protracted emotional disturbance, such as deep grief or prolonged anxiety. Oille has described these patients as sensitive or suggestible with a past or family history of nervous excitability. They usually have a pessimistic type of mind; that is, they take a serious view of their symptoms or what people tell them and are unable to forget or disregard unfavorable remarks as can optimistic persons. The majority of this anxiety group is made up of people who have a pain somewhere which they think is in their hearts or due to their hearts.

We are presenting a few cases from our series of cardiac neuroses to show how often the physician himself has had an important role in the initiation of the illness. For this reason we are confining ourselves to such cases and ignoring others in which family pressures or illnesses or other environmental influences have played the predominant role.

REPORT OF CASES

CASE 1.—A divorced woman aged 28 was referred for psychiatric study of her "heart attacks" after careful medical and laboratory examination had revealed no cardiac pathologic change. The "heart attacks" had begun at the age of 19 years and continued up to the time of study. They consisted of severe, constricting retrosternal pain passing up to the left

From the Langley Porter Clinic, University of California Medical School.

1. Gillespie, R. D.: Psychological Medicine and the Family Doctor, Brit. M. J. 2:263, 1944.

2. Viko, L. E.: Cardiac Neurosis Associated with Rheumatic Valvular Heart Disease, Am. Heart J. 1:539, 1926.

3. Kilgore, E. S.: The Nervous Heart, Am. Heart J. 5:9, 1929.

4. Oille, J. A.: Cardiac Neuroses, Canad. M. A. J. 45:1, 1941.

5. Weiss, E.: Anxiety and the Heart, Clinics 1:916, 1942. Weiss, E., and English, S. O.: Psychosomatic Medicine, Philadelphia, W. B. Saunders Company, 1943.

6. Conner, L. A.: Psychic Factor in Cardiac Disorders, J. A. M. A. 94:447 (Feb. 15) 1930.

shoulder, palpitation, difficulty in breathing and numbness in both arms, more pronounced on the left. The attacks would last several minutes and occurred at rest or on exertion. The patient had seen many doctors, some of whom had diagnosed heart disease and had prescribed digitalis and other cardiac medications as well as vitamins and sedatives. Between attacks the patient was symptom free and able to lead a normal, vigorous life.

Psychiatric study revealed that the patient had been attached to her father until the age of 16. At this time, when she began to go out with boys, her father abruptly accused her of having syphilis and forced her to have a medical examination, which was negative. She was terribly upset by this experience and torn between love and resentment toward her father. She left home and, despite her father's entreaties, did not return to see him. Several years later her father died suddenly following a heart attack. This was a shock to the patient, accentuated by the death of her fiancé in a car accident a week later. It was following this she had her initial attacks of retrosternal pain, breathlessness and palpitation. The family doctor examining her thought that she might have "a leaking heart" and put her to bed. Hearing the doctor's words, the patient thought of her father's cardiac death and felt such would be her fate. Under emotional stress she had recurrent attacks, which several doctors diagnosed as "heart disease" even in the absence of objective findings. One thought her tonsils responsible and recommended their removal. In view of this, when several physicians told her that she had a "nervous heart" and "there was nothing wrong," she "felt they were crazy."

The patient married but had a great fear of sexual relations and pregnancy because a sister had died of postpartum infection. Since a "heart attack" would preclude sexual activity, she found this a useful device repeatedly. After five years of marriage with recurrent separations, she divorced her husband and came to California. She began to work and got along very well until she began an affair with a man, and her "attacks" recurred. The local doctor treated her for one year and finally referred her for further study.

The physical and electrocardiographic examinations were negative. Since the patient appeared tense and nervous, sighing frequently, she was overbreathed for one minute, reproducing in all details her "heart attack." The patient immediately recognized her symptoms and their method of production. After a series of psychiatric interviews, she married her friend and has remained symptom free since that time.

CASE 2.—A married woman aged 30 was referred for anxiety regarding her heart following the birth of a child. Physical examination and laboratory examination had shown no cardiac pathologic change. Reviewing her life history, it was found that at the age of 20, while undergoing a routine medical examination, she was told that she had "an enlarged heart." The doctor also recommended that she "tell her husband" when she married, which she interpreted to mean that she should not have children. From this time on she was troubled by palpitation and breathlessness, which one doctor told her was "pseudoangina."

She married and managed quite well, although there was constant discord between her husband and her mother, all living in the same home. When she became pregnant she worried excessively about her heart, and a physician, attempting to reassure her, jokingly said "We never worry about the heart during pregnancy but only after the baby is born." Consequently, immediately following the birth of the child she was troubled by the recurrence of her symptoms with accentuated intensity and a profound conviction that her heart would stop. Repeated medical examination and reassurance could not dissuade her.

Psychiatric discussions unearthed the sources of conflict with the mother and the husband. When she had gained insight regarding the home situation, the patient and husband moved away from the mother's home. The significance of her cardiac symptoms was explained; the interpersonal relationship between husband and wife clarified. She has continued well and free from anxiety since completion of the treatment.

CASE 3.—A man aged 25, complaining of attacks of precordial pain and shortness of breath for two years, was seen for psychiatric study. At the age of 12 years he had been told by his family physician that masturbation would lead to sexual debility and heart disease in later life. His "heart attacks" had begun two years previously at the time he became engaged. Despite repeated medical and laboratory examinations, he was convinced he had "heart disease." The attacks frequently came on at night while asleep, awakening him and forcing him to sit up and gasp for breath. With psychiatric study it was found that erotic dreams precipitated these attacks. Overbreathing for sixty seconds, the patient would produce an attack. When the mechanism of the attacks was explained and the original sexual fears due to masturbation were discussed, definite improvement ensued.

CASE 4.—A man aged 34, a butcher, was seen for complaints of pain over the heart and extreme nervousness. At the age of 19 his family doctor told him that he had "athlete's heart" and instructed him to "take it easy." However, repeated medical examination since that time had shown no pathologic condition. Psychiatric study showed that he had always been under the domination of an aggressive mother. To escape her he had married at 18 years of age to find that his wife had the same personality makeup as his mother. His feeling of being trapped and frustrated in this situation gave rise to anxiety symptoms, incorrectly diagnosed by the physician as being of cardiac origin. After finding out the factors underlying his symptoms, the patient decided that his marriage would never work. Since separation from his wife there has been a decided improvement in his condition.

COMMENT

Kilgore⁷ has stated that the physical signs often responsible for mistaken diagnoses of cardiovascular disease are benign murmurs and arrhythmias, simple tachycardia and temporary elevation of blood pressure from the excitement of a medical examination. The symptoms giving rise to error are those designated as neurocirculatory asthenia and effort syndrome. Summing it up, he feels that the disability of masquerade heart disease is almost always due to fear which usually comes from suggestion. The readiness of physicians to diagnose heart disease on the basis of an audible murmur is responsible for many cases of cardiac neurosis. He has said that a systolic murmur can be found in a considerable proportion of healthy young adults if they are examined in various postures, in different phases of respiration, before and after exercise. In the absence of supporting findings or history they should not be regarded as pathologic, the diagnosis of valvular disease being held in abeyance until radiographic and electrocardiographic studies have been made. Repeatedly, our patients have been told by their physicians that they had "a murmur" or "a leaking valve" or "a leaking heart" with no investigation beyond auscultation of the heart. Patient 1 was told that she had "a leaking heart" and when in later examinations some physicians told her that her heart was normal she "thought they were crazy."

Another error is that of some physicians who tell patients that they have "functional heart disease," "nervous heart" or "pseudoangina." As far as the patient is concerned, the physician is diagnosing a form of heart disease. If it was explained that the cardiac symptoms are due to nervousness but not due to any actual heart disease, such misunderstandings would not arise. Similarly, the use of diagnoses such as "athlete's heart" or "effort syndrome" imply to the patient that an actual disease entity is present.

7. Kilgore, E. S.: The Heart in Military Service, J. A. M. A. 117: 258 (July 26) 1941.

There is a tendency to recommend rest in bed as a general measure in patients exhibiting anxiety tension symptoms with resultant exaggeration and fixation of symptoms. In patients with anxiety about their heart the doctor's advice to rest in bed or "take it easy" confirms their worst fears. We have had many of these patients who as children or adolescents were ordered to bed following a "nervous breakdown." One patient, a woman aged 32, was told by her physician at the age of 14 years that rest was essential for the remainder of her life: "Never run when you can walk, never exert yourself unless it is necessary." The disastrous effects on the patient's subsequent life can be readily imagined and had nearly wrecked her marriage by the time she came under psychiatric care.

Next to preoccupation about the heart there is universal concern about blood pressure. The layman's ideas about blood pressure, accentuated by the impressive apparatus and technic, have given it an air of portentous meaning. Nearly every patient is anxious as to the results of this examination and places much importance on it. The glib use of the phrase "high blood pressure" or "low blood pressure" by the examining physician, without any careful explanation of its significance, may be the focal point of an anxiety state. It is indeed surprising to find the number of neurasthenic or depressed patients whose condition was ascribed to low blood pressure, if their blood pressure determinations tended to be in the lower ranges of normal variation. Similarly, many patients showing a slight elevation in pressure are told that their pressure is increased, even though the anxiety accompanying such examination is well known and might in itself be the cause of the elevation.

Even reliance on the electrocardiogram as a diagnostic aid may be a source of error. It has been shown that the anxiety tension states classed as the hyperventilation syndrome may show electrocardiographic changes which could lead the unsuspecting physician to diagnose heart disease.⁸ An awareness of the possible changes due to hyperventilation would obviate such a possibility. Recently a married woman aged 21 was seen in the outpatient department of the University of California Hospital complaining of precordial pain and breathlessness for which no organic pathologic condition could be found. An electrocardiographic record showed changes suggesting heart disease. However, the examining physician felt that a hyperventilation syndrome might account for the whole clinical picture. He was able to reproduce the entire symptomatology by the hyperventilation test. Psychiatric study revealed marital discord plus guilt feelings regarding a premarital sexual escapade. Fortunately he recognized the picture and so avoided the initiation of a cardiac neurosis.

At times the doctor, anxious to have a patient carry out his orders or submit to an operation, will unduly stress possible untoward effects if these measures are not followed through. While it is justifiable to mention that heart disease may be a possible consequence of neglected, diseased tonsils or sinuses or other toxic foci, it is unfair to imply that it is an invariable result of continued neglect. One patient was told, at the age of 15, that unless his "diseased tonsils" were removed he would be dead of heart disease in five years. He

is still alive and healthy at the age of 30, still with the same infected tonsils—but with a cardiac neurosis.

Again, the indiscriminate use of medications in the anxious patient all too often have a deleterious effect. Digitalis is made use of because the physician feels that in small doses it can do no harm and might do some good if, by chance, any slight heart disease should be present. Since most patients learn sooner or later that digitalis is a specific cardiac medication, they assume that they are being treated for heart disease. Frequently other cardiac drugs are used. At times the patient misconstrues his sedative mixtures as being specific cardiac drugs. In fact, the use of any medications or even placebos may lead to misconceptions unless their purpose is explained.

It cannot be too strongly emphasized that, since cardiac symptoms may occur in neuroses of all types and even in psychoses, they are only the presenting symptoms of a more fundamental disorder—the individual's inability to handle his personal and environmental problems. The physician, limiting his attention to the cardiac symptoms, permits the major personality disorder to escape unnoticed and helps to fix the anxiety at a somatic level.

While anxiety cases showing cardiac symptoms are less frequent in the present struggle compared to World War I, they still are common and present a major problem. In his Goulstonian Lectures on the effort syndrome Wood⁹ pointed out that a number of the cases in his series had been induced by the doctor. The accidental finding of a systolic murmur or of tachycardia was usually the source of error. Evidence of predisposition was common. Given the suggestible subject, the doctor often succeeded in linking emotional reactions to effort by grafting on the mind of the patient the idea that his heart would not stand up to exertion. Douglas-Wilson¹⁰ found cardiac symptoms the most common somatic manifestations in a group of psychoneurotic soldiers. The induction of symptoms by suggestion through prolonged confinement to bed or by doctors' or relatives' warnings was found in 14 of the group of 53 cases. It was noted that, whatever the reason for the patient's having been confined to bed—it varied from head injury to "nervous breakdown"—the patient himself had supposed that it was because of "something wrong with the heart." Not one of the patients that had been instructed to "take things easy" had sought further advice after the initial warning.

In addition to these cases recognized as cardiac manifestations of a psychogenic disorder there are countless numbers incorrectly diagnosed. Lewis,¹¹ in reviewing the studies at Hampstead from 1914 to 1918, estimated that about five sixths of the British army diagnoses of organic heart disease were erroneous. Commenting on this, Kilgore stated that in the United States services many diagnoses of mitral insufficiency, myocarditis, angina pectoris and the like were mistakenly entered in the records and carried forward as grounds for disability ratings long after the passage of years and accumulating evidence should have removed any doubt of the original diagnostic errors. Considering the great number of men incorrectly labeled as suffering from "heart disease," the extent of the iatrogenic illness so created is indeed appalling. One wonders if the same diagnostic errors are recurring in the present conflict.

8. Thompson, W. P.: The Electrocardiogram in the Hyperventilation Syndrome. *Am Heart J.* 25: 372, 1943.
Barker, P. S.; Shrader, E. L., Effects of Alkalosis and of Acidosis on the ECG. *ibid.* 17: 1, 1943.
J.; Dalton, A.; Some associated with the Anxiety States and Their Relation. *Ann. Int. Med.* 11: 961, 1937.

9. Wood, P.: Da Costa's Syndrome (or Effort Syndrome), *Brit. M. J.* 1: 767, 1941.
10. Douglas-Wilson, I.: Somatic Manifestations of Psychoneurosis, *Brit. M. J.* 1: 413, 1944.
11. Lewis, T.: The Soldier's Heart and the Effort Syndrome, ed. 2, London, Shaw & Sons, Ltd., 1940.

While only after postwar surveys will the answer be known, the impression is that we do not yet recognize psychogenic disorders of this type.

One of us, while serving as psychiatrist at an army induction center, was surprised to find a rather considerable number of healthy young men concerned about their having heart disease, despite the absence of any clinical findings. Repeatedly they stressed the fact that the family doctor had diagnosed heart disease and were surprised, if not actually irked, when told that their cardiac examinations were negative. While those exhibiting anxiety tension states were rejected, the great majority of these men were deemed acceptable for military service. It will be interesting to ascertain some day their later reactions to the strains of military life and service.

TREATMENT

It has been reported by many observers that the majority of patients coming to the doctor with cardiac symptoms do not have heart disease.¹² However they have anxiety about their hearts and, as a fertile field for cardiac neuroses, must be handled carefully. The physician's primary task is to reassure the patient not only through his words but through his attitude. A careful history and thorough physical examination, with laboratory aid where indicated, impresses the patient with the physician's interest and permits an acceptance of his diagnosis. Statements the doctor makes should be positive and definite and, if he is in doubt about certain points, it is best not to mention these. If heart disease is found, the doctor should frankly state the case and advise accordingly, being careful not to implant an exaggerated idea of the gravity of the condition. If he is sure the signs and symptoms do not mean heart disease, he must be equally frank and decided. When he feels the need for roentgen ray or electrocardiographic study, he must explain why and answer any questions whether expressed or not. More important than words is his attitude, since any semblance of uncertainty may nullify his reassurances. Having another doctor listen to an interesting though benign murmur or a suggestion for increased rest or even a vague recommendation to "take it easy" implies some positive finding to these suggestible individuals. When the symptoms are associated with anxiety, the doctor should briefly explain the physiologic and psychologic mechanisms responsible, so that the patient can understand the basis of his otherwise incomprehensible symptoms. To send a patient on his way with the statement that "nerves" are responsible for his difficulties is to leave him prey to many worries and unwholesome thoughts. A few simple sentences by the doctor may save months and years of anguish.

We have previously reported an overbreathing test that in many cases can reproduce the cardiac symptoms complained of by an emotionally disturbed individual.¹³ The patient, while seated relaxed in a chair or comfortably lying down, is instructed to breathe deeply in and out through the mouth. He is usually asked to sigh once or twice and then told to do so very deeply at regular intervals, forcing all the supplemental air from the lungs. This is continued at a rate of 15 to 25 respirations per minute for a period of one to three minutes. To insure deep respiration with complete removal of the air and to regulate the rhythm

the physician presses lightly on the lower sternum or epigastrium. In many patients this is not necessary, since the patient overbreathes satisfactorily without intervention by the doctor. The time interval from the beginning of the test to the onset of symptoms is noted. In most cases symptoms will be definitely present within sixty seconds and should be pronounced within a minute or two. If symptoms are not present after a three minute period, the test should be discontinued, provided that during the three minutes the ventilation was trebled or quadrupled. The physician must be sure that there is adequate respiratory exchange, since some patients go through the motions of deep breathing, raising and lowering their shoulders, without actually overbreathing. Rarely has it been necessary to continue the hyperventilation for fully three minutes, since the patient will request that the test be discontinued after one or two minutes, often stopping of his own accord. At this point the patient may recognize that these symptoms are those of which he has originally complained, otherwise this fact should be brought to his attention. He is told that his symptoms are not those of a physical disease but are due to emotional problems whose undischarged emotional tension causes him to sigh or overbreathe. It is explained that sighing, yawning, panting, "catching one's breath" or any other form of deep breathing all represent the same process and have the same result in their production of these symptoms of overbreathing.

In the absence of psychiatric treatment designed to uncover the psychologic mechanisms responsible, most patients will continue to have symptoms. Therefore it is important for the physician to urge the patient to live a normal life in spite of his symptoms. He is urged to return to work and to assume his regular duties, perhaps doing lighter work at first but gradually doing more with increasing improvement. A great deal of pressure by the doctor may be necessary to initiate the first steps, such as going upstairs, walking down the street or going downtown despite the presence of symptoms. It is permissible to use mild sedatives, but it must be made clear to the patient that they are given for his nervousness and not for his heart. Rest should not be prescribed unless absolutely necessary, but increasing activity should be the rule. It is questionable whether eliminating coffee and tobacco does much good. Frequently the doctor may have an idea as to the sources of psychologic upset. Adjusting marital difficulties, particularly in the sexual sphere, or recommending business or environmental changes may effect a decided improvement. Probably many patients can be handled at such a superficial level. Where the difficulties are more deep seated and do not respond to these measures, psychiatric consultation should be sought.

CONCLUSION

In emotionally disturbed individuals, cardiac disturbances are commonly the presenting symptoms of their anxiety. Often careless or ill timed remarks of the physician may initiate a cardiac neurosis. Every patient consulting a doctor for anxiety tension states, particularly those with cardiac symptoms, must be considered as potentially having a cardiac neurosis and managed accordingly. When careful physical and laboratory examinations reveal no organic findings, the patient must be told so unequivocally. Some of the sources of error in diagnosis and management have been mentioned. Recognition by the physician of the presence of underlying personality disorders in such cases will help reduce the incidence of iatrogenic disease.

12. Menninger, W. C.: *Functional Cardiovascular Disorders*; "Cardiac Neurosis," Southwest Med. 21: 281, 1937. White, P. D.: *Observations on Functional Disorders of the Heart*, Am. Heart J. 1: 527, 1926.

13. Gliebe, P. A., and Auerback, A.: Sighing and Other Forms of Hyperventilation Simulating Organic Disease, J. Nerv. & Ment. Dis. 99: 408, 1944.

DEATH FROM AIR EMBOLISM FOLLOWING INSUFFLATION DURING PREGNANCY

REPORT OF A CASE

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Insufflation has been a medical practice since early in the nineteenth century. The earliest recorded mention of it appeared in 1823. There are descriptions of its use for therapeutic and diagnostic purposes in connection with almost every opening and cavity of the body. Despite the fact that it has been used widely and frequently since then, insufflation has not been regarded as a dangerous procedure.¹

The first reference in medical literature to insufflation of the vagina with silver picrate as an effective treatment of trichomoniasis appeared in 1936.² Since that time three deaths directly attributed to insufflation of the vagina during pregnancy have been reported, one from Canada³ and two from England.⁴ Attention was directed by these accounts to the dangers of the method; especially when applied during the latter part of pregnancy. One author referred to the fact that the English manufacturer of the drug "Picrotol" warns the physician against its use in these circumstances.⁵

The following death from air embolism resulting from insufflation during pregnancy is therefore the fourth from this means to be reported, and the first to be recorded in the medical literature of this country.

REPORT OF CASE

A white woman aged 21 was brought by ambulance to the St. Louis County Hospital from the office of an osteopath on Aug. 14, 1944 and pronounced dead on arrival. An inquest held by the county coroner disclosed the following facts: The decedent, a housewife and trigravida, had consulted the osteopath on August 14 at 9 p. m. because of an irritating vaginal discharge. She was admitted to the treatment room at about 9:15. Shortly thereafter the osteopath began to insufflate the vagina with silver picrate compound powder 1 per cent silver picrate in kaolin,⁶ Wyeth, using a Shelanski insufflator⁷ (Wyeth) fitted with a soft rubber vaginal shield. It was estimated that from one half to two thirds of the standard container (Wyeth) attached to the insufflator was filled with silver picrate powder (2 to 3 Gm.) when the treatment began. The patient was supine, with her feet elevated in stirrups, during the proceedings.

Approximately five minutes after the conclusion of the insufflation the patient sat up and asked a question. In a

moment she became noticeably pale and said "I feel sick" and fell back on the examining table, suddenly inhaled deeply and emitted a peculiar sound as if she was strangling. Shortly thereafter she was dyspneic, cyanotic and unconscious, and a white froth began to exude from the mouth. The respirations were irregular and then ceased. External stimulants, epinephrine by hypodermic injection and artificial respiration were administered, but within a period of from twenty to thirty minutes after the initial symptoms appeared no heart beat could be detected. Death was recorded officially as having occurred at 10:20 p. m.

Testimony by two members of the immediate family of the decedent did not provide any relevant information with particular regard to heart disease, syncope, injury or convulsions. There was some evidence that the decedent had suffered for several days previous to her death from cramps in the region of the lower abdomen, weakness and "dizzy spells." The records of the osteopath indicated that the patient had visited him on three previous occasions since June 1944 in connection with her pregnancy, which was expected to terminate in October 1944. On June 28 the patient complained of an irritating vaginal discharge for the first time during the pregnancy and was treated with silver picrate powder administered by insufflation in the same manner as on the day of death. A normal blood pressure was obtained on two occasions (110/55) with a pulse rate of 100. On June 10 the temperature was 100 F. and on June 28 99.6 F. The osteopath stated that on July 10 he observed no change in the condition of the patient. She was advised to use vaginal suppositories containing silver picrate (Wyeth) until she returned to his office in August. The decedent had been delivered of a seven months pregnancy in July 1943 by the same osteopath. The child died within twenty-four hours. A Kahn test performed by the St. Louis County Health Department Laboratories in July 1943 was reported as negative. The decedent was the mother of one living child.

The autopsy was performed eleven hours post mortem. The body had been placed in a standard morgue refrigerator (temperature 5 C.) shortly after death was pronounced officially. The diagnoses were the following: Primary: Gas bubbles in the right auricle and ventricle of the heart; edema and congestion of the lungs; hemorrhagic infarct of the lower lobe of the left lung; pregnant uterus containing a normally implanted placenta and a fetus weighing 1,625 Gm. and measuring 430 mm. (crown to heel); discoloration (brown-black) of the vaginal mucosa; subpleural petechiae. Accessory: infarct of the right kidney; adrenal rests of the kidneys; polyp of the ascending colon.

The heart was immersed in water in situ before being incised. The blood within the right auricle and ventricle was noted to be frothy, but this was not observed elsewhere. The placenta was implanted on the left posterolateral surface of the uterus. There was no evidence of hemorrhage or separation. The membranes were intact. The fetus was in an attitude of flexion with the head presenting. Bacteriologic examination of blood removed from the heart showed colon bacilli. No organisms of the Clostridium group were reported.

COMMENT

The clinical picture in this case—pallor, dyspnea, cyanosis and sudden collapse—strongly suggested an acute fulminating anoxia. There was evidence of an initial stimulation of respiration, which then became labored, irregular and finally ceased within a brief period of time. The appearance of a frothy exudate in the mouth reflected the rapidly developing respiratory difficulty. The association of cyanosis with these changes was consistent with acute anoxia. No information could be provided in regard to the blood pressure changes necessary to complete the clinical manifestations of acute fulminating anoxia. Lacking also was a history of sudden, excruciating retrosternal pain so often recorded in cases of postoperative pulmonary embolism. The character of the postmortem observations tended to

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1. Several deaths, however, have followed the introduction of air into various parts of the body (Weyrauch, H. M., Jr.: *Death from Air Embolism Following Perirenal Insufflation*, J. A. M. A. **114**: 652 [Feb. 24] 1940. Mathé, C. P.: *Fatal Embolus Due to Infusion of Bladder*, Brit. M. J. **1**: 1115, 1937. Gahab, L. J., and Shelanski, H. A.: *Silver Picrate Treatment, J. Lab. & Clin. Med.* **22**: 1155, 1937.
2. Winther, N.: *Treatment of Trichomonas Vaginitis (with Silver Picrate)*, Minnesota Med. **19**: 731, 1936. Buxton, R. von L., and Shelanski, H. A.: *Trichomonas Vaginitis*, Am. J. Obst. & Gynec. **33**: 842, 1937. Mascall, W. N.: *Treatment of Vaginitis by Silver Picrate*, Brit. M. J. **1**: 1115, 1937. Gahab, L. J., and Shelanski, H. A.: *Silver Picrate Treatment, J. Lab. & Clin. Med.* **22**: 1155, 1937.
3. Pierce, S. J. S.: *Death from Vaginal Insufflation (During Pregnancy)*, Canad. M. A. J. **35**: 668, 1936. An "antiseptic powder" was said to have been used. This case must be accepted with reservation because of the fact that the body was embalmed immediately after death.
4. Brown, R. L.: *Fatal Embolism After Insufflation of Vagina (with Silver Picrate During Pregnancy)*, Lancet **1**: 616, 1943. Partridge, A. J.: *Third Case of Fatal Embolism Reported After Vaginal Insufflation (with Silver Picrate During Pregnancy)*, Brit. M. J. **2**: 329, 1943.
5. The only American manufacturer who supplies this compound for medical use publishes no such warning.
6. Silver Picrate-Wyeth's, report of the Council on Pharmacy and Chemistry, J. A. M. A. **109**: 29 (July 3) 1937.
7. Shelanski Insufflator Acceptable, report of the Council on Physical Therapy, J. A. M. A. **109**: 1453 (Oct. 30) 1937.

remove from serious consideration a diagnosis of primary reflex circulatory failure independent of all other causes as suggested by the reports of Weiss, Capps and others.⁸

Mechanism.—Although the exact port of entry was not demonstrated⁹ at autopsy it may be supposed on the basis of the postmortem observations that air entered the systemic venous circulation at the site of placental implantation and was carried directly to the right auricle and ventricle of the heart. If the quantity of air thus reaching the heart was small, or if it was introduced at a slow rate, the resulting delay in the pulmonary circulation would be of no consequence. But in a case in which a large volume of air gained entrance to the systemic circulation, as in this instance, the time interval of interruption of the blood flow through the pulmonary artery would have been sufficient to bring about collapse and probably death.¹⁰ According to several investigators,¹¹ 8 cc. of air per kilogram of body weight can be fatal if injected intravenously in dogs within twenty to thirty seconds. Richardson and his co-workers found that in dogs large volumes of air injected intravenously at a rate of 0.12 cc. per kilogram of body weight were tolerated well. One animal received 1,377 cc. of air in this manner in four hundred and sixty minutes without serious consequences. They noted, however, that 100 cc. of air introduced into the venous system within twenty to thirty seconds in a dog weighing 12 Kg. was fatal. Wolffe and Robertson,¹² on the other hand, claimed that intravenous injection of amounts less than 15 cc. per kilogram in dogs was not fatal. Karsner¹⁰ reported that 450 cc. of air proved fatal within twenty-five minutes to a dog weighing 10 Kg. when the air was introduced intravenously in amounts of 20, 30, 50 and 70 cc. at a time.

The conclusion reached by many authors¹³ discussing air embolism is that death results from mechanical obstruction of the pulmonary artery.

Physical Factors.—The physical factors involved in death from air embolism following insufflation of the vagina do not lend themselves readily to duplication in the laboratory. The apparatus employed is at best a crude implement serving merely to direct the drug or chemical where it is most useful; individual variations are introduced by the physician according to the manner in which he uses the device. Other modifications can appear, depending on defects in the instrument resulting either in manufacture or from long continued use. In order for pulmonary air embolism to occur, however, it is known that (1) there must be a positive pressure at the point where the gas enters the vein and (2) approx-

imately 500 cc. of gas must enter the vein within a relatively short time.

It is recommended generally in cases in which the use of silver picrate by insufflation is indicated that 5 Gm. of 1 per cent silver picrate in kaolin be administered.² A Shelanski insufflator (Wyeth) was obtained and fitted with a standard glass vial (Wyeth) into which from 1 to 5 Gm. of the powder was placed. The insufflator was attached then to a graduated and stoppered flask filled with water and so arranged that compression of the rubber bulb of the instrument would displace a measurable amount of fluid from the container. When all of the powder had been ejected from the vial attached to the insufflator, readings were taken of the total liquid displaced from the water flask. Three separate trials were made using this method. The results are shown in the accompanying table.

From these results it would appear reasonable to assume that, if the conditions during the insufflation of the patient (when 2 to 3 Gm. of the powder was administered) were in any way comparable to those of the foregoing experiment, an amount of air between approximately 925 and 2,200 cc. was injected into the vaginal cavity within a period of several minutes. The capacity of the vagina is, of course, a matter that can only be estimated. If it is presumed that in the case of the average woman the vagina is a cylinder measuring

Amount of Water Displaced by Air Ejected from the Shelanski Insufflator When Varying Quantities of Silver Picrate Are Employed

Amount of Silver Picrate, Gm.	Cubic Centimeters of Water Displaced		
	I	II	III
1	425	625	450
2	1,025	1,125	925
3	1,225	1,325	1,300
4	1,850	1,950	2,200
5	2,700	2,800	3,000

approximately 8 cm. in height and 5 cm. in diameter, then its capacity is obtained from the formula $\pi r^2 h$ and thus computed to be 157 cc. This consequently might be regarded as the minimum capacity. The maximum volume of the vagina in the average woman must be based on the alteration of its dimensions during parturition. The greatest diameter to which the vagina might expand during labor is 13.5 cm. (the occipitomenstrual diameter of the fetal head). According to the formula $\pi r^2 h$, therefore, the potential capacity of the vagina may be considered as at least 1,144 cc. It is unlikely that any patient would submit to a treatment which would suddenly distend the vagina to its limit, even if it was possible to do so. Moreover, should the rubber vaginal shield with which the instrument is equipped be pressed firmly enough against the perineum to prevent the escape of air to the outside, any positive pressure created within the vagina should tend to force the gas into the uterus. If the foregoing figures are valid, then in this case a positive pressure was created within the vagina which forced at least 500 cc. or more of air into the pregnant uterus within a brief interval of time, thus providing the necessary requisites for air embolism to result.

CONCLUSION

The facts brought forth by studies of deaths resulting from vaginal insufflation during pregnancy indicate that it can be an extremely dangerous procedure, especially in the latter half of gestation. In 3 of the cases, including the 1 reported here, the decedents were nearing

8. Weiss, S., and Baker, J. P.: Carotid Sinus Reflex in Health and Disease: Its Role in Cautation of Fainting and Convulsions, *Medicine* 12: 297, 1933. Capps, J. A.: Air Embolism versus Pleural Reflex as Cause of Pleural Shock, *J. A. M. A.* 109: 852 (Sept. 11) 1937.

9. As Moritz points out, it may prove difficult to show the specific site of entry of air into the endometrium (Moritz, A. R.: *Pathology of Trauma*, Philadelphia, Lea & Febiger, 1942, p. 133).

10. Karsner states that the foam which forms when air is mixed with circulating blood can require 50 per cent more time to pass through capillaries than blood alone. An additional delay may be thought to occur at the same time within the right ventricle. As a result, following systole there is probably a considerable residue of foamy blood within the right ventricle (Karsner, H. T.: *Human Pathology*, ed. 6, Philadelphia, J. B. Lippincott Company, 1938, p. 119). According to Bard, a rapidly induced anoxia (as in the case of inhalation of inert gas) results in unconsciousness and collapse within forty five to eighty seconds (Bard P.: *MacLeod's Physiology in Modern Medicine*, ed. 8, St. Louis, C. V. Mosby Company, 1938, p. 374).

11. Harkins, H. N., and Harmon, P. H.: Embolism by Air and Oxygen, *Proc. Soc. Exper. Biol. & Med.* 32: 178, 1934. Richardson, H. I.; Coles, B. C., and Hall, G. E.: Experimental Embolism, *Canad. M. A. J.* 36: 584, 1937. Coles, B. C.; Richardson, H. I., and Hall, G. E.: Experimental Embolism, *ibid.* 37: 24, 1937.

12. Wolffe, J. B., and Robertson, H. F.: Experimental Air Embolism, *Ann. Int. Med.* 11: 112, 1935.

13. Weirauch, Matthe, Turcotte and Devine; Moritz; Karsner; Harkins and Harmon; Richardson, Coles and Hall; Wolffe and Robertson.

parturition, and of these 2 were multiparous. The fourth death, although it occurred in only the fourth month of pregnancy, also involved a multiparous mother. It would seem, therefore, that multiparity as well as the terminal stage of gestation is a factor adding to the risk of such insufflation. In view of the fact that other methods are equally effective in the treatment of trichomoniasis it appears that insufflation of the vagina may be abandoned. As long as this method is used, however, a warning should accompany the sale of the drug and the device.¹⁴

Clinical Notes, Suggestions and New Instruments

A TRANSFUSION REACTION DUE TO A DANGEROUS UNIVERSAL DONOR

FAILURE OF THE SECRETING FACTOR TO PROTECT THE RECIPIENT

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Since some controversy still exists as to whether a group O donor with an unusually high titer of isoagglutinins can be dangerous when his blood is transfused into a recipient of one of the other three groups, we report here a case in which the evidence seems particularly convincing that such "universal donors" can really be dangerous.

A girl of 19 who had never been pregnant, belonging to blood group A, received 450 cc. of citrated whole blood of group O. No untoward signs were noticed during the transfusion, but forty-five minutes after completion of the transfusion the patient complained of a feeling of oppression and had a severe chill. The temperature rose somewhat over 102 F. Jaundice developed, and the icterus index had risen to 62 units within eighteen hours after the transfusion. During the next twenty-four hour period oliguria developed. The patient voided only 85 cc. of urine during this period, and the urine contained large amounts of urobilinogen. The nonprotein nitrogen of the blood was found to be 100 mg. per hundred cubic centimeters at the end of the twenty-four hour period. Recovery was slow, but at the end of several weeks the patient seemed to have recovered completely from the effects of the transfusion.

Because of evidence suggesting that the reaction might be due to the use of group O blood, a sample of blood from the patient was examined, thirty-six hours after the transfusion, to see whether the hemolysis had affected the patient's or the donor's cells. The method of Ashby was used.¹ This has the advantage of requiring very little blood and gives results of sufficient accuracy in most cases.

It was found that the total red blood cell count of the patient at this time was 3,350,000, a figure which may be accurate to about 1 per cent. By making the dilutions with a strong anti-A serum, prepared by the method of Witebsky, Klendshoj and McNeil² and counting the unagglutinated cells, it was found that the group O red cell count was about 350,000. Since the patient weighed 59 Kg., we may estimate that she had originally about 4.7 Kg. of blood, or possibly somewhat less. Assuming 400 cc. of whole blood to have been present in the 450 cc. of citrated blood which was administered, this means that the introduced blood amounted to about 8.5 per cent of the recipient's total, leading one to expect a count of group O cells initially of about 380,000. The figure actually found does not seriously differ from this, considering the uncertainties involved. It is of importance to note, however, that the patient had a total red count of 4,250,000 before the transfusion, which shows

that she had lost 4,250,000—(3,350,000—350,000), or 1,250,000 red cells per cubic millimeter. This amounts to about 29 per cent of the patient's own cells.

It seems clear that the destruction has been almost entirely of the patient's and not the donor's cells. The amount is large enough to be quite serious and amply sufficient to explain the symptoms observed.

The serum of the donor was titrated to determine the strength of the isoagglutinins present, and an anti-A titer of between 1:1,024 and 1:2,048 was found. The anti-B titer, though less, was still high, namely 1:512. It is clear that this donor has an unusually high titer, for we find, by our technic,³ an anti-A titer of around 1:64 in the average group O serum.

It has been suggested by some that the secreting factor⁴ which determines whether or not water soluble blood group substance will be present in the tissues and secretions of the individual may assist, when present, to prevent transfusion reactions due to incompatible agglutinins of the donor. It might be expected that a large part of the introduced agglutinins would quickly be neutralized by the group substance present in the plasma and tissues of an individual of the secreting type, thus protecting his erythrocytes from their action. However, when we examined samples of saliva from the patient⁵ we found to our surprise that the patient was a "secretor,"⁶ and that group A substance was present in her saliva in considerable amount and therefore, by inference, in her plasma and tissues.

SUMMARY

A case of transfusion reaction due to the use of a dangerous (high titered) universal donor was observed in which the recipient lost nearly 30 per cent of her original red cells as a result of the transfusion but ultimately recovered. It was found that although the patient, who belonged to group A, was a "secretor," nevertheless the group substance present in the plasma and tissues obviously had not served fully to protect the patient's erythrocytes against the action of the incompatible isoantibodies. It is not known whether the reaction might have been more severe if the patient had been a nonsecretor.

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SCHISTOSOMA HEMATOBIUM INFECTION

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Vesical schistosomiasis has been exceedingly rare in this country and seen exclusively among patients of foreign extraction or natives who have been traveling or residing abroad. There is no endemic focus of vesical schistosomiasis on the North American continent. In the North Central states and neighboring regions of southern Canada there is an endemic focus of schistosome dermatitis or "swimmers' itch,"¹ but this parasite appears incapable of maturing in man. Large numbers of our armed forces have been engaged in actual combat in North Africa, fighting in fields and through streams where *Schistosoma hematobium* is endemic. With the return of these men we may expect that some will be infected. If the infection is light, symptoms may not appear for a matter of years, and so it is quite probable that men infected abroad may not have symptoms until some time after their return to civilian life. Therefore I feel it is highly desirable to report such a case in detail.

G. S. K., a white man aged 27, Egyptian, was admitted to the U. S. Marine Hospital, Baltimore, on June 7, 1944 complaining of blood in his urine for the previous four months. Late in February 1944 he had developed frequency with nocturia of four to seven times and associated lower abdominal cramps. Almost persistently at the termination of urination he had noticed a few drops of blood. There was also moderate burning on urination, and for the two months previous to his hospitalization he had had occasional sharp pains in the peri-

14. Since this article was submitted for publication an additional death from air embolism following insufflation during pregnancy has been reported (Martland, H. S.: Air Embolism: Fatal Air Embolism Due to Powder Insufflators Used in Gynecologic Treatments, *Am. J. Surg.* 130: 164 [May] 1945).

From Boston University School of Medicine.
1. Ashby, W.: The Determination of the Length of Life of Transfused Blood Corpuscles in Man, *J. Exper. Med.* 29: 267-281, 1919.
2. Witebsky, E.; Klendshoj, N. C., and McNeil, C.: Potent Typing Sera Produced by Treatment of Donors with Isolated Blood Group Specific Substances, *Proc. Soc. Exper. Biol. & Med.* 55: 167-170, 1944.

3. Schiff, F., and Boyd, W. C.: Blood Grouping Technic, New York, Interscience Publishers, Inc., 1942.

4. Schiff, F., and Sasaki, H.: Der Ausscheidungstypus ein auf serologischen Wege nachweisbares mendeles Merkmal, *Klin. Wchnschr.* 11: 1426, 1932.

5. Brackett, Sterling: Pathology of Schistosome Dermatitis, *Arch. Dermat. & Syph.* 42: 410-418 (Sept.) 1940.

nium during urination. He had also experienced a few vague episodes of chills and fever between February and June. There had been no loss of weight. A review of his systems showed no other symptoms. The patient considered himself to be in good health aside from the symptoms enumerated. The pertinent facts in his past history revealed that he was born in the Nile Delta in Egypt, where he lived in a rural community and frequently played, waded and swam in irrigation ditches and tributaries of the Nile Delta. None of his family to his knowledge had developed any similar difficulties. He left Egypt over three years previous to admission, he served as a seaman aboard a British ship engaged continuously in the North Atlantic service, and he had not returned to Egypt since starting his service as a seaman. In fact, he was ashore but little even in the North Atlantic ports. He stated that he had been perfectly well until February.

Physical examination showed that he was well developed, slightly obese and not acutely ill. The temperature, pulse and respirations were normal. Significant clinical findings were a thin pannus along the upper margins of both corneas, some scarring and granulations in the conjunctiva of both upper eyelids (old inactive trachoma) and mild tenderness on deep pressure over the urinary bladder. The external genitalia and the rectal examination were normal.

Cystoscopy showed on the midposterior wall of the bladder two closely approximated, rounded, reddish, edematous masses, each about 1 cm. in diameter, which were elevated 3 to 4 mm. above the surface. The mucosa covering these nodules was vascular and rather piled up in small, "raspberry-like" groups. Arranged about these two lesions was a series of small, satellite, cystic nodules, each about 2 mm. in diameter, having thin walls and containing a thin, yellowish white fluid. Sections of the biopsy specimen showed an intact epithelium with a very

Urine examinations of the terminal bloody urine revealed many typical ova of *Schistosoma hematobium*. Stool examinations showed no ova or parasites. The patient's blood count was normal, with only 3 per cent eosinophilia. His blood urea nitrogen was 11.0 mg. per hundred cubic centimeters and the serologic examination was negative.



Fig. 2.—Higher magnification of single ovum showing internal structure; $\times 200$.



Fig. 1.—Section from biopsy of bladder lesion showing a deeply placed single ovum surrounded by dense granulation tissue; $\times 80$.

granulomatous mass beneath, diffusely infiltrated with lymphocytes, plasma cells and many eosinophils. In the midst of this there were two small clusters of cross cut and tangentially cut ova. In one section one of these ova was cut centrally and perfectly longitudinally. This longitudinally cut ovum showed a sharp terminal spine on its pointed end. The diagnosis was *Schistosoma hematobium* infection of the urinary bladder.

The patient was placed on a high fluid intake with a regular diet, and intramuscular injections of fuadin every other day were started. The initial dose was 1.5 cc., followed by a second dose of 3.5 cc., and then each succeeding dose was 5 cc. until a total of 40 cc. had been administered. The urine became free from ova in the latter part of June and remained free. The hematuria and all symptoms disappeared shortly after treatment started, and there was no reaction to the fuadin. On July 4 cystoscopy revealed definite improvement, with very slight evidence remaining of the previous polypoid-like lesions. A biopsy showed only granulation tissue beneath the mucosa, with a diffuse cellular infiltration of lymphocytes and eosinophils. No ova were found.

COMMENT

Prompt diagnosis is very important, because therapy by antimony compounds gives best results in recent rather than in long standing infections in which extensive tissue damage has taken place. In late cases after pronounced scarring, deformity and sinus tracts have formed, therapy is of little avail and the prognosis is poor. Even in the early cases more than one course of the drug may have to be given. Antimony and potassium tartrate and sodium antimony tartrate are given intravenously, while fuadin (stibophen) is given intramuscularly. These drugs kill both the adult worms and the ova. Fuadin appears to be the least toxic and to cause few reactions. It gave excellent results in our case. Liver involvement is infrequent in *Schistosoma hematobium* infections but does occur when the infection is heavy and the case is untreated. Local carcinomatous changes in the polypoid growths in the bladder have been reported fairly frequently in long standing untreated cases.

During the four months before coming to us this patient had been hospitalized on two occasions at other institutions. Cystoscopy was done both times, and the first time the impression

was that of benign polyps. On the second occasion the impression was that of a papillary carcinoma and he was transferred to the Tumor Clinic at the Marine Hospital, Baltimore, for treatment. At neither of these cystoscopies was a biopsy taken. The patient's terminal urine was not examined microscopically.

Human schistosomiasis is a rare entity in this country, and our literature contains but few references to this disease. Only one of these² refers specifically to *Schistosoma hematobium* infection. However, the textbooks³ on tropical diseases contain excellent discussions, for *Schistosoma hematobium* infection has been extensively studied in Egypt and North Africa. The reader is referred to these textbooks for details of the life cycle, pathology and epidemiology. It is sufficient here to summarize the salient features. Man is the principal definitive host. Only a few monkeys have been found naturally infected. The ova are passed in the urine and rapidly hatch (in warm weather), liberating a free swimming parasite, the miracidium, which seeks the suitable intermediate host, a snail. Within the snail metamorphosis occurs with the development and liberation of large numbers of cercariae, minute fork tailed parasites which swim about, searching for their definitive host, man. They penetrate the unbroken skin, lose their tails and enter the circulation. They lodge in the portal radicles, feed, develop and become sexually differentiated in about four to six weeks. The young parasites emerge from the liver and work their way down into the veins of the urinary bladder. In severe and heavy infections some of the parasites lodge in the hemorrhoidal

We have in this country snails related to those that serve as the intermediate host in Egypt and Africa. However, it has not been proved that these snails will serve as suitable intermediate hosts. Because of the difference in our living and working conditions it is extremely doubtful that any focus of *Schistosoma hematobium* is likely to be established by the scat-



Fig. 4.—Centrally cut ovum, showing the characteristic terminal spine; $\times 300$.

tered cases of *Schistosoma hematobium* infection returned from abroad.

In our case we found large numbers of ova in the terminal urine, and, indeed, many ova frequently hatched while on the microscope slide under observation without any dilution of the urine. Generally it is recorded that a dilution of urine with 10 parts of water is necessary for these ova to hatch. All our efforts to preserve these ova with the usual chemical preservatives, such as solution of formaldehyde and glycerin, were failures, for within thirty-six hours no intact ova could be found, and we came to the conclusion that no known chemical preservative was satisfactory. The ova hatched rapidly if warm but more slowly if cool. From this experience we feel that rapid freezing might be a possible satisfactory method of preserving these ova. If a specimen is to be shipped and preservation of the ova is desired, rapid freezing and subsequent packing in solidified carbon dioxide offers a possibility of preservation and shipment.



Fig. 5.—Centrally cut ovum, showing the characteristic terminal spine; slightly reduced from a photomicrograph with a magnification of 600 diameters.

CONCLUSIONS

1. Symptoms of *Schistosoma hematobium* infection may not develop for many months to several years after exposure if the infection is light.
2. Biopsies should be taken of polypoid bladder lesions seen on cystoscopy.

Fig. 3.—Nest of ova immediately beneath intact bladder epithelium; slightly reduced from a photomicrograph with a magnification of 160 diameters.

and rectal veins. The fertilized female then deposits her eggs in rows in the walls of the fine tributaries of the vesical veins. The shell is rather porous, and the ova probably secrete a lytic enzyme which aids in their erosion through the vessel wall and bladder mucosa. This process is irritating and there is considerable cellular infiltration characterized by large numbers of eosinophils and also much fibroblastic proliferation. Some ova are permanently walled off and calcified, but many others pass into the urine, causing eroded and ulcerated areas. At the end of urination muscular contraction is strongest and results in bleeding and liberation of many ova from these polypoid and ulcerated lesions in the bladder.

In heavy infections symptoms occur and ova may make their appearance in the urine within sixty days after infection. However, many months may elapse before symptoms occur and ova are present in the urine. In our case at least three years elapsed between infection and the appearance of symptoms.

2. Blum, B. B., and Lidga, H. V.: *Schistosomiasis Infection: Report of Two Cases Found in Northern Michigan*, J. A. M. A. 121: 125-126 (Jan. 9) 1943.

3. Strong, R. P.: *Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases*, ed. 6, Philadelphia, The Blakiston Company, 1943.
 4. Craig, C. F., and Faust, E. C.: *Clinical Parasitology*, Philadelphia, Lea & Febiger, 1940.
 5. Belding, D. L.: *Textbook of Clinical Parasitology*, New York, D. Appleton-Century Company, Inc., 1942.
 6. Bercovitz, Z. T.: *Clinical Tropical Medicine*, New York, Paul B. Hoeber, Inc., 1944.

3. Persons developing hematuria who give a history of having been in Egypt or North Africa should have microscopic studies of their terminal urine for *Schistosoma hematobium* ova.

4. Fuadin is an effective drug in the treatment of *Schistosoma hematobium* infections.

5. Ova of *Schistosoma hematobium* hatch rapidly when warm, even without dilution of the urine with water.

6. No known chemical means of preserving these ova has proved satisfactory.

7. Rapid freezing is suggested as a possible method of preserving these ova.

8. In the light of our present knowledge, endemic foci in this country of *Schistosoma hematobium* are not to be anticipated.

THE DANGER OF INTRAMUSCULAR INJECTION OF CALCIUM GLUCONATE IN INFANCY

REPORT OF THREE CASES, WITH ONE DEATH

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My purpose in this paper is to stress and reemphasize the danger of using calcium gluconate for intramuscular injection in infants.

In 1936 there were two reports which recorded the effects of calcium deposition in the tissues of 2 infants who had received the calcium intramuscularly. Tumpeer's case¹ was that of an infant who weighed 6 pounds 13 ounces (3.1 Kg.) and received 9 cc. of 10 per cent calcium gluconate intramuscularly on the third day of life. At the age of 5 weeks x-ray examination demonstrated a radiopaque substance in the thigh and buttocks where the injection had been made. A week later there was a slough of the tissue, with the extrusion of calcified material which was identified as calcium phosphate. By the fourth month of life an x-ray of the region was normal. Von Hofe² reported the case of an infant who had received calcium gluconate intramuscularly because of twitching on the third, fifth and sixth days of its life. Ten cc. of calcium gluconate had been injected into the gluteal muscles on two occasions, and one dose of 10 cc. had been given intramuscularly. All the areas became indurated at the age of 2 weeks and infection occurred in one of the regions previously injected. X-ray showed calcification in the soft tissues of the gluteal and the scapular regions. Bakwin³ and Shannon⁴ have reported other instances of infection following intramuscular injections of calcium gluconate.

I now report 3 cases of infants who received calcium gluconate intramuscularly with subsequent abscess formation. In the last one gangrene of the tissues and death supervened. As far as I know this is the only recorded death from this complication.

REPORT OF CASES

CASE 1.—R. M. was a 3 months old white boy baby admitted to the Long Island College Hospital on May 30, 1937 because of fever, collapse and convulsions. The family and birth history were negative. The infant had been hypertonic since birth. For a month prior to admission there had been no weight gain. The present illness was characterized by fever of three days' duration. It fluctuated between 100 and 102 F. The cause of the fever was undetermined. Irritability was pronounced, and the infant slept poorly these three days. At 10 o'clock on the morning of admission the patient suffered a vasomotor collapse, including cyanosis and respiratory difficulty. The temperature rose abruptly to 107.5 F. but was reduced by hydrotherapy to 102 F. The stuporous state persisted for four hours, followed by hyperexcitability and irritability. Hospitalization was thereupon advised. Meanwhile, 10 cc. of 10 per cent calcium gluconate was injected into the muscles of the right buttock.

From the Department of Pediatrics, Long Island College of Medicine, Long Island College Hospital and Kings County Hospital (Long Island College Division)

1. Tumpeer, I. H., and Denenholz, E. J.: Calcium Deposit Following Therapeutic Injections in Tetany of Newborn, *Arch. Pediat.* 53: 215 (April) 1936

2. von Hofe, F. H., and Jennings, R. E.: Calcium Deposition Following Intramuscular Administration of Calcium Gluconate, *J. Pediat.* 5: 348 (March) 1936

3. Bakwin, H.: Pathogenesis of Tetany of Newborn, *Am. J. Dis. Child.* 54: 1211 (Dec.) 1937

4. Shannon, W. R.: Tetany Syndrome in Newborn Infants: Remote Deposit of Calcium Salts Following Injection of Calcium Gluconate, *Am. J. Dis. Child.* 56: 1046 (Nov.) 1935

The admission examination revealed that the infant was acutely ill, decidedly cyanotic and in severe respiratory distress. Except for a slight left internal strabismus, the examination was negative. Blood count revealed 5,600,000 red cells, 13,000 white cells and 64 per cent polymorphonuclears. The urine showed 3 plus urine albumin and many red and white cells and cellular casts.

The diagnosis of pyuria was made. The therapy included intravenous glucose and sodium R-lactate injections. There was a favorable response, so that on discharge the patient was afebrile and the urine was normal. However, an abscess had developed at the site of injection, which was about an inch in diameter. This healed after several weeks, but a permanent scar remains.

CASE 2.—C. S. R., a white girl baby born on Nov. 19, 1942, birth weight 7 pounds (3.2 Kg.), had a convulsion on the third day after birth. Ten cc. of 10 per cent calcium gluconate was injected into the right buttock. Forty-eight hours after the injection the buttock became indurated and discharged purulent material for six weeks. After two months healing occurred.

CASE 3.—A. Y., a white girl baby, one of twins, was delivered on July 13, 1943 by low forceps. She weighed 4 pounds 11 ounces (2.1 Kg.). The mother and babies were discharged on



Areas of gangrene in case 3.

the eighth day in good condition. At the age of 14 days the mother observed two convulsions at the 2 a. m. feeding time. These convulsions began as a twitching of the face, followed by clonic movements of the left arm and leg. Her physician sent the baby to the hospital. There the infant received an injection of 10 cc. of calcium gluconate into each buttock for "possible tetany." There were no further seizures. On August 6, when the baby was 24 days old, she was discharged with the advice that a salve was to be applied to the buttocks, because they were infected where the needle had been inserted.

At home the mother noted that her baby "felt feverish" and the buttocks appeared worse. She therefore brought her to the Kings County Hospital (Long Island College Division) the following day, August 7.

The infant was well developed and well nourished and weighed 6 pounds 7 ounces (2.9 Kg.). She appeared acutely ill. Her temperature was 102 F. The examination on admission was normal except for both buttocks. These were equally affected. Each had an area of sloughing gangrene 5 by 5 by 1.5 cm. involving the ischioanal fat and gluteus maximus, as shown in the illustration. The ischial tuberosities, though not visible, were easily palpated. When the infant bore down, the perirectal tissues bulged into the right ischioanal space. Two days after the admission a surgical debridement was performed. The slough contained necrotic fat, connective tissue and muscle. Therapy consisted of sulfathiazole, orally and as an ointment for the buttocks, and two blood transfusions. In spite of these

measures the course of the infant's illness was steadily downhill. On the third day pneumonia set in. This was associated with the development of meningitis. Death followed on the fifth day after admission.

The autopsy was performed by Dr. Caspar Burn. The body, weighing 7 pounds (3.2 Kg.) and measuring 19 inches (48 cm.), appeared to be poorly nourished. There was no evidence of jaundice or petechial hemorrhages of the skin. The scleras and conjunctivas were clear and showed no petechiae, jaundice or hemorrhages. The buttocks presented pronounced ulcerations. The ulceration of the left buttock was oval, measured 2.5 by 5 by 3.5 cm. and was 1 cm. deep. It had a slightly irregular jagged edge and contained a small amount of yellow, necrotic material which covered the adipose tissue and the left gluteal muscles. The ulceration on the right buttock measured 2.5 by 5 by 3 cm. and was 1 cm. deep; this presented a yellow necrotic slough covering the gluteal fat; each ulceration was surrounded by a purple areola 4 to 5 cm. wide.

The pleural surfaces were smooth, glistening and translucent; no evidence of apical scars, tubercles or exudate was noted. The lungs had their usual shape and both lungs appeared to be collapsed except in the right lower lobe, which was firm and prominent. The external surfaces of the left lung showed numerous small, depressed, purple areas, whereas the whole right lung appeared a diffuse purple. On section the lung parenchyma was moist and exuded a frothy, pink material. The right lower lobe was dark beefy red and showed almost complete loss of lobular formation. The cut surface appeared smooth and darker red than usual, with this change being more prominent in the right lung than in the left. The bronchi and blood vessels showed no undue prominence, and the bronchi were lined by a smooth, white, glistening membrane. The hilar and tracheobronchial lymph nodes were not unduly prominent and showed no evidence of tuberculosis.

The scalp over the occiput showed two old hematomas about 6 cm. in diameter, most likely the result of the use of the scalp veins for intravenous therapy ante mortem. The anterior fontanel was diamond shaped, soft, 3 fingerbreadths in diameter, and showed no bulging or recession. The sagittal suture showed no overriding, and the posterior fontanel was closed. The bones of the vault of the skull were soft and showed no irregularities or fractures. The dura showed no evidence of hemorrhage or tearing. The meninges, except over the base of the brain, had lost their usual translucency, and within the subarachnoid spaces in this region there was an accumulation of fluid, greenish, purulent material. The brain was symmetrical and had well formed sulci and gyri, with no evidence of softening. The cerebellum was well developed. The blood vessels were thin walled and showed no aneurysms or arteriosclerosis. On section, the convolutions of the gray matter were pale and indistinct in outline but were regularly arranged. The ventricles appeared somewhat dilated and were filled with granular, pus-like material. The medulla and cerebellum showed the usual structures and did not appear unusual.

The skin was lined with stratified squamous epithelium, which stopped short at the edge of the ulceration. The corium of the skin contained sweat and sebaceous glands and hair follicles. The edge of the sinus consisted of collagenous material together with dilated and engorged newly formed capillaries and edema fluid. This process involved the base of the ulcer and to a slight extent the adjacent adipose tissue. There were a few foreign giant cells situated within the newly formed granulation tissue. Occasional polymorphonuclear leukocytes were present within the necrotic zones.

The remaining organs were essentially normal.

Bacteriologic examination of the heart's blood revealed *Staphylococcus aureus*, of the ulcers of the buttocks *Staphylococcus aureus*, *Bacillus pyocyaneus* and *Proteus vulgaris* and of the meninges *Staphylococcus aureus*.

The anatomic diagnoses were abscess of buttocks, sepsis, atelectasis of both lungs, bilateral hemorrhagic pneumonia and acute purulent basilar meningitis.

COMMENT

I have referred to the fact that previous articles have stressed the danger of injecting calcium gluconate intramuscularly in infants. The possible explanation lies in the fact that the cal-

cium, which is injected as a gluconate, is precipitated as a phosphate. The reason for this may be linked up with an increased phosphorus content of the blood serum in these cases. This is followed by coagulation within the local blood vessels, accounting for the necrosis and sloughing of the tissues (Tumpey¹).

Whatever the reason, the practice would still appear to be quite common. Furthermore, several excellent sources state that calcium gluconate may be used with safety intramuscularly. In Goodman and Gilman's textbook⁵ with reference to calcium gluconate the statement is made "It can be administered orally, intravenously or intramuscularly." No mention is made of the danger of using it intramuscularly in infants. The intramuscular injection of calcium gluconate is discussed in New and Nonofficial Remedies,⁶ which is issued under the supervision of the Council on Pharmacy and Chemistry of the American Medical Association. On page 454, under actions and uses of calcium gluconate, it states that it "is nonirritant for hypodermic or intramuscular use," "for children, 0.2 to 0.5 Gm. administered every day, on alternate days or every third day."

In view of the previous reports and these additional 3 cases, including a fatality, through sepsis not due to the drug, it would seem advisable to eliminate from the book and drug literature the use of calcium gluconate for intramuscular injection in infancy and specify the use of calcium gluconate in infants orally and intravenously only.

CONCLUSION

Three cases of abscess formation, including one death, following the injection of calcium gluconate intramuscularly in infants have been observed. It would appear advisable to avoid completely the use of calcium gluconate intramuscularly in infants and to restrict its use to the oral and intravenous routes. 340 Henry Street.

Council on Foods and Nutrition

The Council on Foods and Nutrition has authorized publication of the following statement.

GEORGE K. ANDERSON, M.D., Secretary.

POLICIES OF THE COUNCIL WITH RESPECT TO THE NUTRITIVE QUALITY OF FOODS

The Council on Foods and Nutrition has long concerned itself with the quality of foods. At first this interest involved primarily the purity of individual products and the truthfulness of statements made on package labels and in advertising. More recently the attention of the Council has also been given to the nutritional quality of foods and to the effect of a poor nutritional environment on the public health. A recognition of the importance of natural foods of both plant and animal origin in the maintenance of high standards of nutrition is paramount. It is necessary that the vast bulk of our diets in the way of carbohydrates, fats and proteins must come from products of this type. While certain nutrients found in these foods may be prepared synthetically, nutritional knowledge is incomplete, and unknown food factors undoubtedly exist which can be obtained only from natural food products.

It is well known, however, that many foods have suffered deterioration in their nutritional values as a result of the influences of modern civilization. Fruits and vegetables have been influenced by selective breeding to give better yields per acre and to have better keeping qualities in market or a better appearance. These induced changes have frequently brought about a reduction in the content of vitamins or minerals, or both, such that consumption of natural foods does not always insure adequate nutrition. The preference of the public for processed foods has frequently caused many of the valuable nutrients of a food to be discarded in favor of the nutritionally inferior, smooth, bland parts of the natural food. The use of

5. Goodman, L., and Gilman, A.: *The Pharmacological Basis of Therapeutics*, New York, Macmillan Company, 1944, p. 604.
6. *New and Nonofficial Remedies*, Chicago, American Medical Association Press, 1944, p. 454.

high temperatures in the preparation of certain types of foods further reduces their value to the body. Examples of these effects may readily be found in the chemically pure sugar of commerce, which lacks all but traces of its original vitamins and minerals, in white flour, from which the nutritious germ and outer coatings have been removed, and in the refined cereals, which undergo various processing procedures. These "denatured" foods have come to replace in large part the nutritious more nearly whole cereal grains which in former days supplied a considerable portion of the vitamins of the B group that enter the diet.

A consequence of this sophistication of the modern food supply has been to increase the difficulty of selecting diets that are suitable to maintain a good state of nutrition. Extensive educational programs have failed to bring about a greater appreciation and usage of the natural type of foods, such as whole wheat flour and bread. The continuation and extension of the preference for nutritionally inferior foods poses a question of grave concern with respect to the effect on the public health. This is especially disturbing, since animal experiments have shown that ill effects resulting from less than satisfactory diets may become obvious only after many years.

In view of these facts the Council wishes to encourage efforts to improve as far as possible the nutritive quality of all foods which contribute importantly to the American diet and which thereby constitute the food environment of the people. A genuine interest is taken by the Council in all attempts to raise the level of nutrients in products of the farm and in the institution of measures designed to retain in high degree the nutrients of foods during storage, processing and cooking. Programs of the dairy industry directed toward the production of milk of a higher and more uniform vitamin A content have had the support of the Council. Recently plans have been made to grant acceptance and use of the Council Seal to canned tomato and citrus juices, which contain a high natural content of vitamin C. The Council has also encouraged limiting consumption of sugar to such amounts as are needed to increase the palatability of foods with significant nutritional values.¹

In spite of all these efforts there exist now and will undoubtedly continue to exist for some time certain specific deficiencies in large segments of the population which can be remedied best through addition of the indicated nutrients to cheap, staple foods that occupy substantial places in the dietary.² The Council has favored and encouraged the addition of certain nutrients to selected foods for the purpose of overcoming these deficiencies by replacing as nearly as possible that which has been lost in processing or by making appropriate foods serve as carriers of dietary essentials which otherwise are inadequately supplied by many diets. Such additions considered to be in the interest of the public health are enumerated as follows:

Restoration (referred to as enriched in instances in which federal standards have been enacted)

of processed cereals with thiamine, riboflavin, niacin and iron.

of corn meal with thiamine, niacin and iron.

of hulled rice with thiamine, niacin and iron.

Enrichment of white flour with thiamine, riboflavin, niacin and iron.

Enrichment of white bread and rolls with thiamine, riboflavin, niacin and iron.

Enrichment of farina with thiamine, riboflavin, niacin and iron.

Fortification

of milk with 400 units of vitamin D per quart.

of oleomargarine with not less than 9,000 U. S. P. units of vitamin A per pound.

of salt with iodine.

The Council reaffirms its expression of opinion respecting the conditions under which additions of vitamins or minerals to foods will be approved as stated here and previously.³ As more

knowledge is acquired, some of the present "enrichment" programs may be modified. Some may be discontinued and new ones may be added. It is believed, however, that the present guiding principles will be maintained. In any case the addition of synthetics to natural foods must depend on the prevention of known deficiencies in groups of the population and not on the utilization of synthetic products which happen to be available at low cost. In the future the synthetics may be used more efficiently in animal nutrition to decrease the cost of animal products so that these materials may be more widely used in the human diet.

The Council disapproves of unlimited or indiscriminate fortification of general purpose foods with minerals, vitamins, amino acids or other nutrients. It likewise disapproves of artificial combinations of edibles designed to carry vitamins, minerals, amino acids or other nutrients for the use of the general public. It will use its influence to discourage the sale of products of the latter type except as special purpose products appropriately labeled to indicate their special purpose uses.

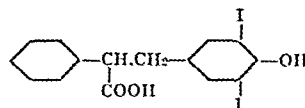
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary.

PRIODAX.— β (4-hydroxy-3,5-diiodophenyl)- α -phenyl-propionic acid.— $\text{HO}(\text{C}_6\text{H}_4)_2\text{CH}_2\text{C}(\text{C}_6\text{H}_5)(\text{COOH})$.—M. W. 494.1. Priodax contains 51.37 per cent of iodine.



Actions and Uses.—Priodax is used as a medium for cholecystography. It is claimed to cause less nausea, vomiting and diarrhea than tetraiodophenolphthalein. The drug is excreted primarily through the kidneys.

Priodax is contraindicated in acute nephritis, uremia and acute disorders of the gastrointestinal tract. Side effects that may be encountered occasionally include pain on urination, nausea, vomiting, diarrhea, griping, headache, sensation of burning in the esophagus, generalized itching, dryness of the mouth, general weakness and flatulence.

Dosage.—The average adult dose is 3 Gm., although more may be given. The patient swallows the drug during or after a light fat-free meal in the late afternoon. Nothing is then eaten until the roentgenologic examination is completed the next morning.

Tests and Standards.—

Priodax occurs as a white or faintly yellowish, practically odorless and tasteless powder; soluble in alcohol and ether; slightly soluble in benzene and chloroform; soluble in both alkali carbonate and hydroxide solutions; insoluble in water. Priodax melts at 157 to 162 C., with decomposition.

Shake about 0.2 Gm. of priodax with 2 cc. of water and 2 cc. of chloroform: the chloroformic layer remains colorless (absence of free iodine).

Place about 0.3 Gm. of priodax in a 50 cc. glass stoppered cylinder, add 30 cc. of water, shake the contents for five minutes, filter through paper: separate portions of 10 cc. each of the filtrate yield a very faint opalescence with 0.5 cc. diluted nitric acid and 0.5 cc. silver nitrate solution (soluble iodides); no coloration or precipitation on saturation with hydrogen sulfide (salts of heavy metals).

Dry about 0.5 Gm. of priodax, accurately weighed, to constant weight over sulfuric acid: the loss in weight should not exceed 0.1 per cent. Incinerate 0.5 Gm. of priodax, accurately weighed, in a platinum crucible: the residue does not exceed 0.1 per cent. Transfer about 0.25 Gm. of priodax to a bomb tube; determine the iodine content by the Carius method: the amount of iodine found corresponds to not less than 50 per cent nor more than 52 per cent, when calculated to the dried substance.

SCHERING CORPORATION, BLOOMFIELD, N. J.
Tablets Priodax: 0.5 Gm.

1. Council on Foods and Nutrition: Some Nutritional Aspects of Sugar, Candy and Sweetened Carbonated Beverages, J. A. M. A. 120: 761 (Nov. 7) 1942.

2. This statement of principle respecting addition of nutrients to foods is in harmony with the policy of the Federal Security Agency as promulgated July 3, 1943, Federal Register, July 3, 1943, p. 9170.

3. Annual Meeting of the Council on Foods, J. A. M. A. 123: 681 (Aug. 19) 1939.

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SATURDAY, SEPTEMBER 29, 1945

TSUTSUGAMUSHI DISEASE

According to Blake, Maxcy and their colleagues,¹ the term tsutsugamushi disease is, on the basis of priority, appropriate to describe the condition which is also commonly known as scrub typhus or mite-borne typhus. The causative organism is *Rickettsia orientalis* and this name has the best claim to recognition. After thorough evaluation of the evidence, these investigators conclude that the disease, originally known as tsutsugamushi by the Japanese, is not confined to the river valleys of the islands of Honshu, Formosa and the Pescadores but has been reported from many localities in southeastern Asia and the adjacent islands in the Indian Ocean and southwest Pacific and in the coastal area of North Queensland.

Although there is some variation in clinical manifestations of the disease, particularly with regard to the frequency with which the primary lesion, or eschar, is found and the severity or case fatality rate, these variations are not greater than those which have been observed in Rocky Mountain spotted fever or classic louse-borne typhus. Consequently, although there may be some variation in virulence of the strains of the causative agent in different geographic areas, satisfactory evidence on which to base a recognition of two or more different diseases is not available.

The only vector which has been proved by animal experiments is the mite *Trombicula akamushi*, which occurs in Japan, Formosa, the Pescadores Islands and possibly elsewhere. The closely related species *Trombicula deliensis*, present in Sumatra, the Federated Malay States, India and Queensland, has also been incriminated, but crucial proof that this mite serves as a vector is still lacking. The principal host of tsutsugamushi fever in Japan is a field vole which has been found to

be naturally infected with *Rickettsia orientalis*. Because of its distribution, numbers and habits, this rodent probably serves as the principal reservoir host.

The principal early symptoms and physical signs of mite-borne typhus during the first five to seven days of the disease are headache, apathy and general malaise; fever, anorexia, bradycardia, congestion of the conjunctiva, lymphadenitis and a characteristic eschar. Only the presence of a typical eschar is sufficiently pathognomonic to establish the diagnosis at the first stage of the disease. A macular or maculopapular rash usually appears on the trunk between the fifth and the eighth day. The course is variable: the total febrile period in the mild cases may extend for twelve to fourteen days; when moderately severe, there may be signs of pneumonitis and encephalitis with recovery by lysis early in the third week; in the severe cases fever may last for three weeks or more with signs of severe pneumonitis and encephalitis. Collapse of the peripheral circulation and myocarditis are common in the severe cases. The Weil-Felix test becomes positive for *Proteus* OXK about the twelfth or fourteenth day of illness in most cases. The causative organism, *R. orientalis*, can be recovered readily from the blood of patients during the acute stage of the disease by the intraperitoneal inoculation of 0.2 to 0.3 cc. of blood in white mice. When positive, both of these laboratory procedures establish the diagnosis, but the disease is not excluded by a negative Weil-Felix test for *Proteus* OXK.

Blake and his colleagues also report the isolation of nine strains of a rickettsia from patients with mite-borne typhus of New Guinea. Inoculation studies were carried out with white mice, rabbits and hamsters. The latter animal proved to be excellent for studies of cross immunity. It was also found possible to cultivate these strains in the yolk sac of the fertile hen's egg. These investigations showed that the morphologic and pathogenic characteristics of both the human strains and the mite strains were identical and were similar to those described for *R. orientalis*, thus confirming the view that the mite-borne typhus of New Guinea is the same as tsutsugamushi disease of the Japanese Empire.

In a companion study, five different foci of tsutsugamushi disease in British and Dutch New Guinea and adjacent islands affecting American troops were investigated.² Strains of the etiologic agent, *R. orientalis*, were recovered by injection of white mice made with suspensions of two species of mites taken from wild rats. It was concluded that in local areas, at least, these mites, *Trombicula fletcheri* and *Trombicula walchi*, are vectors of importance. *R. orientalis* was recovered also from the brains of wild rats of a species common in

1. Blake, Francis G.; Maxcy, Kenneth F.; Sadusk, Joseph F., Jr.; Kohls, Glen M., and Bell, E. John: Studies on Tsutsugamushi Disease (Scrub Typhus, Mite-Borne Typhus) in New Guinea and Adjacent Islands: Epidemiology, Clinical Observations and Etiology in the Dobadura Area, *Am. J. Hyg.* 41: 243 (May) 1945.

2. Kohls, Glen M.; Armbrust, Charles A.; Irons, Edwin N., and Philip, Cornelius B.: Studies on Tsutsugamushi Disease (Scrub Typhus, Mite-Borne Typhus) in New Guinea and Adjacent Islands: Further Observations on Epidemiology and Etiology, *Am. J. Hyg.* 41: 374 (May) 1945.

the region. From laboratory studies of the strains recovered, it seemed almost certain that they were identical with human strains.

Tsutsugamushi disease is a definite entity with a known etiology and vector. The disease is widespread over an enormous geographic area and, because the vector is a mite, or possibly mites, living on several species of rodents, the spread of the disease to areas in which it does not now occur is a distinct possibility.

LOCAL PUBLIC HEALTH ORGANIZATION

Under the title "Local Health Units for the Nation" Emerson¹ reports for the Subcommittee² on Local Health Units of the American Public Health Association's Committee on Administrative Practice the status of local public health organization in the counties in the continental United States, exclusive of city health departments.

The committee was appointed under the provisions of a resolution passed by the American Public Health Association on Oct. 29, 1942, a similar resolution passed by the state and provincial health authorities of North America in 1944 and another passed by the House of Delegates of the American Medical Association on June 10, 1942. All these resolutions called, in effect, for the "earliest possible complete coverage of the nation's area and population by county, district or regional modern health service."³ This report is a large volume of 381 pages in which is set forth for each state the present status of local county health organization, together with a brief summary of the characteristics of the state, such as its urban or rural character, its health conditions and per capita buying power of its people, its hospital bed capacities and its public health law. The data for each state are set forth in a descriptive article, tabulations and a map showing where county health organization now exists.

This report of the factual data is the necessary first step by which the objectives set forth in the resolutions can be furthered. Combined approval from state health officials, public health workers and the medical profession should go far to expedite progress.

Until the most remote American family has access to accepted modern public health services, the nation's health will not be properly served. Expansion of public health activity, long advocated and pioneered by the medical profession, is a more sound and logical step

toward improving the nation's health than many grandiose plans for medical care.

The report contains observations which may briefly be summarized:

1. The delivery of the half dozen essential, primary services of public health should be a function of local government responsive intimately and personally to the needs of each community.

2. One third of the nation lives under substandard local health organization ill equipped to give basic minimum health protection at all times and to meet public health emergencies quickly and efficiently.

3. Approximately 20,000 local governmental units, in addition to some 70,000 school boards, are currently responsible for local health service in the United States.

4. The failure of local government in some states to organize workable administrative units of local health service is gradually removing the intimate and personal service of local health protection from the sphere of local to that of state government.

5. In order to provide the organization of workable administrative units of local health jurisdiction, each state should have enabling legislation, either permissive or preferably mandatory, whereby cities and counties may unite to form districts of suitable size for local health administration.

6. For approximately one dollar per capita every person in the United States could have minimum basic local health services under a professionally trained full time medical health officer, with appropriate associated professional and technical personnel and equipment.

7. This countrywide coverage could be achieved through 1,200 local health units.

8. The staff of 1,200 units such as described, if staffed according to the minimum standard, will require roughly 2,000 full time health officers and directors of medical education, all physicians. It will require part time participation of practically 6,000 local practicing physicians. In addition there will be needed roughly 26,000 public health nurses, 5,000 "sanitariums," 9,000 clerical and secretarial workers, 3,500 laboratory workers, 3,800 dentists, 540 health education specialists and 2,400 unskilled workers.

Here is a postwar employment project that offers tremendous opportunities for improving the nation's health. Its administration would be almost entirely local, with technical and financial aid where needed, through state health departments with federal participation. This is one answer to the problem of postwar improvement of the nation's health, as recognized in the platform of the American Medical Association.

¹ Local Health Units for the Nation, a report by Haven Emerson, M.D., Chairman, Subcommittee on Local Health Units Committee on Administrative Practice, American Public Health Association, New York, 1945 Commonweath Fund.

² The subcommittee Burton T. Austin, M.D.; Richard F. Boyd, M.D.; Arthur J. Chesley, M.D.; John R. Hegg, M.D.; Hugh R. Leavell, M.D.; Joseph W. Morntin, M.D.; George H. Ramsey, M.D.; Nathan Smith, Jr. M.D.; John A. Ferrell, M.D.; Clarence L. Seaman, M.D.

³ Proceedings, House of Delegates, American Medical Association, June 10, 1942.

Current Comment

RESIDENCIES AND FELLOWSHIPS

Elsewhere in this issue is a newly revised list of Approved Residencies and Fellowships for Veteran and Civilian Physicians. Included in this group are 736 hospitals whose educational programs have been investigated and approved by the Council on Medical Education and Hospitals. Education in these institutions is acceptable to the American boards. The hospitals are also eligible for the training of veterans under the G. I. Bill of Rights. The current list offers 7,666 residencies and assistant residencies as compared with 5,796 in 1943. However, in relation to the normal peacetime number of 5,256 residents reported in 1941 there is a total of 2,410 additional openings to meet the immediate needs of returning veterans. As the peak of medical demobilization is reached, hundreds of additional residencies will no doubt be available. Many of the approved intern and residency hospitals which have not yet attained a full development of educational services are now organizing new training programs or creating a further expansion of residencies already in existence. Hospitals in every part of the country have indicated a desire to participate in the postwar educational program as far as their facilities and teaching material will permit. In many institutions these plans are already well advanced, so that a considerable number of residencies now in process of investigation may soon be added to the approved list. The Council, in collaboration with the Committee on Postwar Medical Service and the American boards, will continue to exert every effort to provide additional educational opportunities of high quality for physicians seeking advanced hospital training on their return from military service.

THE HEREDITARY PATTERN OF BRAIN WAVES

The electroencephalographic records of 71 twins and 1 triplet were studied by Lennox and the Gibbses.¹ The 1 triplet was counted as 3 dizygotic twins. Fifty-five twins were monozygotic. In these the electroencephalographic tracings were considered identical in 85 per cent, not identical in 4 per cent and in doubt in the remaining 11 per cent. For the 19 dizygotic twins, lack of similarity in the electroencephalographic tracings was found in 95 per cent; they were alike in only 5 per cent. The Boston investigators further found that there was agreement between the physical and brain wave tests of identity in 88 per cent of the 74 twins (including the triplets), disagreement in 4 per cent and doubt in 8 per cent. In contrast with many of the established traits useful in judging the identity of twins, the electroencephalogram was found unstable and subject to frequent environmental changes. For example, the number of waves per second in the electroencephalograms increase with age, whereas irregularities tend to decrease. Another interesting feature of this study was the observation that the proportion of abnormal

electroencephalographic records was higher in this group of apparently normal twins than in the general population. These results suggest that in the absence of acquired variations the brain wave pattern is a hereditary trait. If dependable apparatus and experienced interpretation are employed, the electroencephalogram can be considered a useful method of extending human genetic studies and in tracing neuropsychiatric diseases which are associated with cerebral dysrhythmia. The possibilities of forecasting the inheritance of certain neuropsychiatric disturbances are obvious.

OFFICE SPACE FOR RETURNING PHYSICIANS

Among the most serious of the problems confronting the returning physician, as is already apparent, is the difficulty of securing suitable office space. In large communities, such as cities of over 100,000 population, the problem is apparently far more serious than in the smaller areas. In some larger cities physicians are even remodeling old houses into office space. At a meeting of the Board of Trustees of the American Medical Association in Chicago, members of the Board suggested that civilian physicians who have not been in military service be urged to offer available time and space, at least temporarily, to physicians who return from absences of two or three years in the service. Many a physician whose office is not fully utilized either in the morning or in the afternoon or even in the evening can make available time and space, as well as the use of his facilities to a returning physician, perhaps a member of his own hospital staff. This will enable the returning physician to get in touch with those whom he served previously and to begin rehabilitating himself in the practice of medicine before he has made a permanent choice of a location. The medical profession owes a large measure of gratitude to the 60,000 physicians who have given of themselves so freely and who have sacrificed so much for all of us. The least that can be done for such veterans is to make available to them an opportunity to begin the earning of a livelihood at the earliest possible moment.

DEFUNCT ORGANIZATIONS

A recent issue of the *New York Times* carried an advertisement, more than a page long, of the Chase National Bank. The announcement listed the names of persons or organizations of unknown address owning unclaimed funds of more than twenty-five dollars. Included in the list were the American Fund for French Wounded, the Friends of Belgium, the Committee for Dewey Arch, the Committee for Reception of Prince Henry, the National Sound Money League, the Babies Shelter Commission and the Non-Explosive Can & Device Company. No doubt the funds deposited for organizations like these were made with the best of intentions or eleemosynary motives. The absence of any claimant to the property is, however, a striking commentary on the facility with which new and poorly conceived organizations initiate their operations and the ease with which funds for almost any purpose can be obtained from credulous persons.

1. Lennox, William G.; Gibbs, Erna L., and Gibbs, Frederic A.: The Brain-Wave Pattern, an Hereditary Trait, *J. Heredity* 36: 233 (Aug.) 1945.

MEDICINE AND THE WAR

ARMY

TYPHOID REDUCED IN THE ARMED FORCES

As a result of use of the typhoid vaccine produced at the Army Medical Center, Washington, D. C., typhoid in the armed services has been reduced to less than 0.1 per cent. Sufficient vaccine to immunize a million persons a year is shipped out regularly in specially designed wirebound boxes, Col. S. D. Avery, chief of the division of biologic products, stated.

All Army, Navy, Coast Guard, Marine and Merchant Marine units overseas periodically receive yearly booster shots from the laboratory of the Army Medical Center. The Navy alone receives 15,000 bottles of typhoid vaccine monthly, shipped in special wirebound boxes perfected after thirteen years of research in packing and shipping by the U. S. Army Medical Department Professional Service School. The boxes, although dumped on beachheads during invasions, transported by jeep, donkey, camel or glider, delivered the glass bottled typhoid vaccine with virtually no breakage.

Wirebound boxes have also been designed by army medical men of the center to carry dysentery vaccine, a shigella typing kit that tests the type of dysentery, pollen extracts for the treatment of hay fever, Rh blood typing serum, live cultures and other biologic diagnostic reagents.

ARMY NURSE AWARDED BRONZE STAR

Capt. Ruth C. Tubergen, Army Nurse Corps, formerly of Elmhurst, Ill., was recently awarded the Bronze Star. According to the citation accompanying the award, "While on duty as chief nurse on the Army Hospital Ship *Emily H. M. Weller* from August 1944 to March 1945 she demonstrated outstanding qualities in support of combat operations. In the invasion of southern France, in the Italian combat zone and later in the landings on Leyte and Luzon in the Philippines a heavy responsibility was placed on the nursing service of this hospital ship. The excellent organization of the nursing service to meet the innumerable problems of severely wounded combat casualties was accomplished through her matchless energy and efforts. This entailed working day and night with little rest in dangerous water and under air attack over beachheads. Despite hardships created by tension over the battle area and the speed necessary to get the casualties aboard, she underwent fatigue and lack of proper rest to aid in the saving of lives and the maintenance of morale of the patients. Her achievements contributed unequivocally to the rapid recovery of many battle casualties and reflect great credit on the Nursing Service of the Medical Corps."

MOUNT SINAI HOSPITAL OVERSEAS UNIT RETURNS FROM FRANCE

After more than two years abroad, the Third General Hospital (overseas Unit of the Mount Sinai Hospital, New York) recently returned to the United States on the S. S. *General Stewart*. Although some of the physicians have already been detached from the unit for specialized service elsewhere, Col. Herman Lande, who served at the start as its executive officer and finally as commanding officer, and Major Ruth Chamberlain, its chief nurse, returned with a group of officers and an almost complete roster of the nurses who joined the unit more than three years ago.

The Third General Hospital, organized in 1940, was called into active service in August 1942, at which time it included 55 doctors and 120 members of the nursing staff. The unit arrived in North Africa in May 1943 and was assigned to its first site of operation, a captured German military hospital near Bizerte, on July 10, 1943. Although it was originally meant to be a 1,000 bed hospital, an expansion tent unit providing

for an additional thousand beds was immediately ordered and erected. During the first month of operation over 5,000 war wounded were admitted to the hospital; in addition, another 2,000 transient air evacuees were given medical and nursing care pending their evacuation to the rear. In May 1944 the unit was moved to Italy, where it turned former military barracks near Cassino, within sound of the battle, into a hospital in a short time and functioned throughout the Italian campaign. It landed in southern France on Sept. 29, 1944 as part of the 7th Army invasion and had operated at Aix-en-Provence since that date. Although organized as a 1,000 bed hospital, it rarely had less than 1,500 patients and treated as many as 2,000 at times. The hospital was formally relieved as of Aug. 27, 1945 and the personnel sailed for the United States on September 4.

DENTAL CORPS OFFICER AWARDED BRONZE STAR

Major Denton J. Rees, formerly of Oregon City, Ore., was recently awarded the Bronze Star. The citation accompanying the award read that, "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945, he performed outstanding services as mess officer and general supply officer for the camp. He voluntarily assumed the most difficult of duties, that of supervising the preparation and equitable distribution of meager and nutritionally improper rations among his fellow prisoners. Faced with noxious sanitary and housing conditions and the constant danger of food contamination by insects and vermin, he saw that the enemy-provided starvation rations were prepared in a manner as healthful and palatable as possible. His initiative and just administration were an inspiration to the entire prison camp."

ARMY AWARDS AND COMMENDATIONS

Major Benjamin Dickstein

The Soldier's Medal was recently awarded to Major Benjamin Dickstein, formerly of Philadelphia. According to the citation "Major Benjamin Dickstein, Medical Corps, Army of the United States, when flight surgeon of the 52d Troop Carrier Squadron, 1 Troop Carrier Command, heroically went to the rescue of the crew and passengers of a troop carrier transport which crashed and burned in a night takeoff, Sept. 16, 1942, at Pope Field, Fort Bragg, North Carolina. At the risk of his life he repeatedly entered the burning wreckage and with the assistance of one other extricated 14 injured and helpless men. A short distance from the wreck he administered first aid to the badly injured victims, continuing with this work even when the airplane exploded and showered him with burning debris. Major Dickstein, with great courage and complete disregard for personal safety, saved the lives of several of his comrades." Dr. Dickstein graduated from the University of Pennsylvania School of Medicine Philadelphia, in 1940 and entered the service Aug. 1, 1942.

Brigadier General Roy C. Heflebower

The Legion of Merit was recently awarded to Brig. Gen. Roy C. Heflebower, formerly of Washington, D. C. "From November 1941 to March 1945," the citation read, "he commanded the Medical Replacement Training Center (later the Army Service Forces Training Center) at Camp Barkeley, Texas, the largest installation of its kind in our history. With unusual foresight and thorough understanding of medical requirements he promptly developed a training program, instructing teaching personnel while producing sorely needed medical units. He exerted tireless effort to insure the com-

plete preparation of medical personnel for service with combat troops, a duty where their presence raised morale as well as saved lives. Many units were made ready for overseas assignments under his supervision, more than 130,000 soldiers were given individual training and over 11,900 officer candidates were qualified for appointment in the Medical Administrative Corps. The record of exceptional achievement by the Medical Department in all theaters of operations and the numerous commendations it has received were in great measure made possible by his outstanding ability to produce superior personnel and his skilful, energetic administration of his training program." General Heflebower graduated from the George Washington University School of Medicine, Washington, D. C., in 1906 and has been in the service since April 10, 1910.

Lieutenant Joshua P. Sutherland

The Bronze Star was recently awarded to Lieut. Joshua P. Sutherland, formerly of Haysi, Va., who "performed meritorious service for his fellow prisoners of war while confined at the German Stammlager IXB Prisoner of War Camp from December 1944 to April 1945. When offered an opportunity of moving to an officers' camp he voluntarily remained at this enlisted men's camp, realizing that the Germans had no intention of rendering medical service to the sick and dying men. Conditions under which these men lived were deplorable. The building used as a hospital was full of lice and bedbugs, poorly lighted and littered with rubbish, filth and disease. The Germans refused all requests for medicines, bandages, sedatives and sulfonamide drugs with which to administer medical aid. Working on a starvation diet and despite these deplorable conditions, he never faltered in his unstinting service to the 3,000 fellow prisoners whom he cared for during this period. When the German authority disclosed plans for evacuating this camp by forced marches he, through his remarkable tact and powers of persuasion, convinced the Nazis of the dire consequences of such a move and delayed it long enough to permit the camp to be liberated by American forces." Dr. Sutherland graduated from the University of Virginia Department of Medicine, Charlottesville, in 1943 and entered the service Feb. 11, 1944.

Captain Harry M. Brown

Capt. Harry M. Brown, formerly of Cicero, Ind., was recently awarded the Bronze Star. Accompanying the award was a citation, according to which, "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945, he performed outstanding services as ward surgeon and chief of the eye, ear, nose and throat service in a general hospital. With improvised, makeshift equipment and depleted medical supplies he labored against great odds and on a starvation diet. During an epidemic, the cause of which was unknown, he remained on duty day and night without relief to make more than eighty visual field examinations in an effort to determine the cause and possible cure for this strange disease. His devotion to duty, skill and initiative were highly instrumental in alleviating the suffering, saving the lives and maintaining the morale of his fellow prisoners of war." Dr. Brown graduated from the Indiana University School of Medicine, Indianapolis, in 1939 and entered the service April 5, 1941.

Captain Andrew Kerr Jr.

The Silver Star was recently awarded to Capt. Andrew Kerr Jr., formerly of Rochester, N. Y., who distinguished himself by gallantry in action against the enemy on April 17, 1945 in the vicinity of Aschersleben, Germany. When a motorized patrol encountered severe small arms fire and suffered numerous casualties, Captain Kerr answered the call for litter bearers by leading a group of aid men forward. Disregarding personal safety, he moved about the fire swept area, administering aid to the wounded, moving them to sheltered positions and supervising their evacuation. His courageous actions in defiance of danger, his aggressiveness and his devotion to duty were instrumental in saving many lives and reflect the high traditions of the armed forces. Dr. Kerr graduated from Harvard Medical School, Boston, in 1941 and entered the service Jan. 25, 1944.

Major William P. Rhudy

The Bronze Star was recently awarded to Major William P. Rhudy, formerly of Penn Yan, N. Y., who, "as chief of the surgical service, U. S. Army Hospital Ship *Emily H. M. Wedder*, rendered conspicuous and meritorious service from August 1944 to March 1945 in direct support of amphibious landings on enemy shores. In the initial operation in southern France this ship was assigned the task of evacuating the sick and wounded directly from the beachhead. Anticipating a heavy load of casualties under the most trying conditions, he organized the surgical service into three surgical combat teams. Under his personal supervision these teams performed 116 operations of all types, working day and night, under combat conditions with air activity harassing the beachhead and in waters not completely cleared of minefields. Again in the Italian combat zone this officer distinguished himself by his professional deftness in performing vital surgical operations. Later in the Leyte and Luzon operations he applied the surgical experience gained in southern France and in Italy to the severely wounded casualties, with distinctive results. His surgical contribution to the efficient operation of this hospital ship during these critical periods saved many lives and greatly enhanced the recovery of patients transported to rear base echelons." Dr. Rhudy graduated from Indiana University School of Medicine, Indianapolis, in 1924 and entered the service Aug. 19, 1942.

Major Charles J. Katz

The Bronze Star was recently awarded to Major Charles J. Katz, formerly of Oak Park, Ill., who, "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945," according to the citation accompanying the award, "performed outstanding services as surgeon, neuropsychiatric ward, in a general hospital. With improvised, makeshift equipment and depleted medical supplies, he labored against great odds and on a starvation diet. In addition to his neuropsychiatric tasks he served as medical supply officer, a position which required the use of great diplomacy in maintaining enduring relationships with the Japanese. His activity in conserving the mental health of his comrades under the depressing conditions of constant sickness, malnutrition and poor sanitation was an outstanding contribution to the well-being of his fellow prisoners of war." Dr. Katz graduated from Rush Medical College, Chicago, in 1937 and entered the service Sept. 25, 1940.

Major Ralph E. Hibbs

The Bronze Star was recently awarded to Major Ralph E. Hibbs, formerly of Oskaloosa, Iowa, who, "while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945," according to the citation, "performed outstanding services as surgeon of the tuberculosis ward in a general hospital. With improvised makeshift equipment and depleted medical supplies, he labored against great odds and on a starvation diet. In addition to his medical tasks, he served as adjutant and registrar of the prison camp, assisting the commanding officer in administration and the maintenance of discipline in a most difficult environment. By his superior administrative ability and unusual devotion to duty he inspired his fellow prisoners of war." Dr. Hibbs graduated from the State University of Iowa College of Medicine, Iowa City, in 1936 and entered the service Feb. 20, 1941.

Captain Joseph R. Jehl

The Bronze Star was recently awarded to Capt. Joseph R. Jehl, formerly of Clifton, N. J., for "distinguishing himself by meritorious service in connection with military operations against an enemy of the United States from Oct. 19, 1944 to Jan. 5, 1945 in Holland, Germany and Belgium. In the hard fought engagements in Holland, Germany and Belgium Captain Jehl performed outstandingly as battalion surgeon. By introducing a system of interviews for reinforcements, he made possible their assignment to suitable posts, which resulted in a sharp reduction in cases of combat exhaustion. During the fierce action at St. Vith he repeatedly braved death to care for the wounded of many of our units. Captain Jehl's great courage and skill are worthy of the highest praise."

Dr. Jehl graduated from New York University College of Medicine, New York, in 1932 and entered the service in September 1942.

Colonel William C. Munly

The Legion of Merit was recently awarded to Col. William C. Munly of Washington, D. C., in recognition of exceptionally meritorious services during the Italian campaign. The citation read, in part, "Colonel Munly brought a long experience in military medicine and a thorough familiarity with conditions in the theater to the preparation of a series of

brilliant papers reporting medical problems in Italy. By virtue of his work, hospitalization was so disposed that all areas and all commands received adequate facilities. His reports provided the indispensable basis for many improvements in venereal disease control, in the health of the command, in sanitary conditions both focal and regional and in the efficiency of the medical service rendered United States forces in the Mediterranean theater." Dr. Munly graduated from the University of Oregon Medical School, Portland, in 1916 and entered the service in 1917.

NAVY

CONTRACTS VALUED AT \$11,500,000 TERMINATED BY BUREAU OF MEDICINE AND SURGERY

Victory over Japan found the Bureau of Medicine and Surgery holding \$40,000,000 in contracts for equipment, supplies, drugs and other material requirements, according to Vice Admiral Ross T. McIntire, Surgeon General of the Navy. Undelivered portions totaled approximately \$29,000,000, of which \$11,500,000 are being terminated.

An appreciable proportion of the material for which contracts are being terminated was not scheduled for delivery for several months, and this will minimize disrupting effects on the manufacturing and fabricating plants involved.

Another alleviating factor, Dr. McIntire pointed out, is that many of the cutback contracts are for drugs, biologic products, chemicals, surgical instruments, dental items and other supplies that can be channeled speedily into civilian markets. Most of the items for which completion and delivery are being canceled outright were of a special character intended for use in amphibious warfare and possess little or no value outside the armed forces.

Contracts aggregating \$17,948,000, or nearly one half of the original dollar value of the commitments, were for the more staple types of supplies and equipment whose requirements are not affected by the victory over Japan. Manufacture and delivery of the undelivered portion, totaling \$13,110,000, will be carried to completion.

In the "strictly for war" category were contracts having a face value of approximately \$10,000,000, of which 70 per cent were still in the factory stage on August 14, the day President Truman announced surrender of the Japanese. Commitments for all of this undelivered material are being terminated.

In surgical supplies the termination amounted to \$2,941,000. For surgical instruments and appliances which, in the main, were contracted for when invasion of Japan seemed inevitable, \$1,333,000 in contracts have been terminated or canceled; hospital and nursing equipment, \$1,912,000; office supplies, \$6,000; office equipment, \$19,000; dental supplies, none; dental equipment, \$164,000; field supplies and equipment, \$1,524,000; books, \$13,000.

Besides dental supplies, procurement items unaffected by the terminations and cutbacks are equipment and supplies required for the spectacle and optical program of the Medical Department, mortuary equipment and mortuary supplies.

NAVY AWARDS AND COMMENDATIONS

Captain Frank P. Kreuz Jr.

Capt. Frank P. Kreuz, Washington, D. C., was recently awarded the Bronze Star Medal in recognition of his achievement as senior medical officer aboard the U. S. S. *Washington* while in the rank of commander. The citation read "For meritorious achievement as senior medical officer serving on board the U. S. S. *Washington* in connection with operations against enemy Japanese forces in the Pacific war area from November 1943 to February 1945. Concerned solely with the health and well-being of our men, Commander Kreuz maintained the ship's medical department at the peak of efficiency despite the difficulties encountered as the *Washington* participated aggressively

in major combat operations. Directing all activities under his control with dependable judgment and resource, he initiated and constantly regulated vital health measures to meet the changing conditions prevailing on a combatant vessel, efficiently supervised the care of our sick and wounded and performed many difficult surgical operations with expert professional skill. A wise and practical counselor, understanding the peculiar mental and physical needs of men functioning under the strain of continuous combat, Commander Kreuz, by his outstanding ability and tireless efforts, insured the sound physical condition of the ship's company throughout a prolonged period of intensive operations: His cool courage and gallant acceptance of extreme danger and hardship served as an inspiration to all on board the *Washington* and upheld the highest traditions of the United States Naval Service." Dr. Kreuz graduated from Northwestern University Medical School, Chicago, in 1931 and entered the service. Dr. Kreuz is now serving in the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Lieutenant Commander Harold W. Fleischer

Lieut. Comdr. Harold W. Fleischer, formerly of Washington, D. C., was recently awarded the Bronze Star for "heroic achievement as medical officer on board the U. S. S. *Gambler Bay* when that vessel was sunk by enemy gunfire in October 1944. The citation accompanying the award read "For heroic achievement as medical officer serving on board the U. S. S. *Gambler Bay* when that vessel was sunk by enemy gunfire during an engagement with major units of the Japanese fleet in the battle off Samar, Philippine Islands, on Oct. 25, 1944. With his ship disabled and forced to fall back in formation as a result of several hits from the terrific pounding by hostile cruisers when the Japanese steamed through San Bernardino Strait and attacked his task group with devastating force, Lieutenant Commander Fleischer repeatedly risked his life to care for the many casualties struck down during the fierce action. Despite the imminent danger of explosion, he fearlessly proceeded through burning smoke-filled areas to direct crew members in administering first aid and removing wounded from the stricken compartments, carrying on with consistent determination and aggressiveness until the abandon ship order was given. Adrift at sea for two days following the disaster, he continued to minister to survivors with unfailing efficiency, rendering valiant service and holding the loss of life to a minimum. By his keen foresight and superb professional ability in training the entire ship's company in fundamentals of first aid prior to enemy action, Lieutenant Commander Fleischer contributed to the saving of many men, and his outstanding fortitude and self-sacrificing efforts throughout upheld the highest traditions of the United States Naval Service." Dr. Fleischer graduated from Boston University School of Medicine in 1937 and entered the service June 24, 1942.

DISPOSITION OF STUDENTS ON ACTIVE DUTY IN NAVY V-12 PROGRAM

A recent release from the Navy Department, Bureau of Naval Personnel, contains the revision of Navy V-12 Bulletin No. 322 concerning disposition of students on active duty in the Navy V-12 Program. Medical, dental, theological, premedical, pre-dental and pretheological students will be released to inactive duty under the terms of reference (a), as previously interpreted, only on the stipulation that they continue their medical, dental, theological, premedical, pre-dental or pretheological training.

PHYSICIANS SEPARATED FROM SERVICE

RELEASES REPORTED FROM ARMY, NAVY AND PUBLIC HEALTH SERVICE
PRIOR TO SEPTEMBER 1

Physicians	Date Discharged	Physicians	Date Discharged	Physicians	Date Discharged
Alabama		Connecticut—Continued		Illinois—Continued	
Boudreau, Floyd T.....		Robinson, Norman E.....	April 1945	McNeil W. Jr.....	December 1944
Britton, James V.....		Sullivan, Arthur F.....	June 1945	Ocasek, Miles F.....	May 1945
Gary, Robert E.....	May 1945	Ward, James P.....	January 1945	Owings, Jerry R.....	December 1944
Simpson, Wyatt C.....	July 1945	Warren, Frank O. Jr.....	May 1945	Parker, Meyer H.....	May 1945
				Powell, John R.....	June 1945
Arizona		District of Columbia		Rogers, James C.....	
Dysart, Palmer A.....	April 1945	Adams, Charles F.....	March 1945	Sandberg, Ivan M.....	April 1945
Francis, James D.....	May 1945	Butler, De Ruyter A.....	June 1945	Schaffer, Joseph E.....	May 1945
Merrill, Marriner W.....	July 1945	Goldson, Vernon F.....	June 1945	Shaw, Maurice M.....	July 1945
		Higgins, Eugene W.....	December 1944	Slatin, Louis.....	
Arkansas		Irving, Richard H.....	April 1945	Straus, Francis H.....	June 1945
Kelly, Miles F.....	June 1944	Tamasi, Joseph J.....	May 1945	Tavris, Hyman.....	May 1945
Lawson, Dwight.....	June 1943			Tresley, Ira J.....	April 1945
Leverett, Charles G.....	February 1945			Wadsworth, Harold V.....	December 1944
Massey, Lorenzo D.....	June 1945			Weiskopf, Henry S.....	June 1945
Miller, John H.....	March 1945			Wieneke, Carter H.....	April 1945
Taylor, Robert L.....	March 1945			Young, Leslie W.....	April 1945
				Zanette, Alfred A.....	April 1945
California		Florida			
Barondes, Royal D.....	April 1945	Adler, Lawrence.....	April 1945	Indiana	
Berndt, Allen E.....	April 1945	Ashton, Wilbur L.....	April 1945	Baltes, Joseph H.....	May 1945
Butt, Edward M.....		Auslander, Harold P.....	December 1944	Eisaman, Cecil L.....	March 1945
Crandall, Frank G. Jr.....	June 1945	Bichard, Phillip M.....	December 1944	Haffner, Herman G.....	June 1945
Drew, John F.....	January 1945	Carroll, George F.....		Levi, Leon.....	April 1945
Elgin, James C.....	June 1945	Cole, Richard K.....		Mendenhall, Clarence D.....	April 1945
Epstein, Ervin H.....	June 1945	Freeman, Jaul L.....	January 1944	Quigley, Joseph B. Jr.....	April 1945
Fields, H. M.....	May 1945	Grable, James S.....	April 1945	Schiller, Herbert A.....	April 1945
Fiske, Leigh G.....	July 1945	Griggs, Thomas S.....	December 1944		
Geisler, William H.....	June 1945	Hardie, Dan E.....	May 1945	Iowa	
Goggin, Chester W.....	June 1945	Lovejoy, Marion A.....		Hale, Albert E.....	March 1945
Grow, Walter L.....		Martin, Leldon W.....	May 1945	Hess, Ardo M.....	
Harris, Earle K.....	December 1944	Pennington, Luther T. Jr.....	June 1945	Kelly, Dennis H.....	May 1945
Hills, Clarence B.....	March 1945	Safer, Jacob V.....	March 1945	Matt, Wayland P.....	June 1945
Hunter, James M.....	March 1945	Stewart, Edgar A.....	June 1945	Smith, Herbert J.....	April 1945
Johnson, William M.....	February 1945			Vest, William M.....	May 1945
Kanner, Harry M.....	July 1945	Georgia		Wolfe, Wilson C.....	December 1944
Knott, Norman L.....	June 1945	Barfield, Hugh H.....	June 1945		
Lasky, Irving I.....	June 1945	Bradford, Henry C.....	January 1944	Kansas	
McPherson, Henry A.....		Clark, John A.....	October 1943	Conklin, Kenneth E.....	April 1945
Morris, Samuel A.....	March 1945	Dow, William S.....	March 1945	Craig, Paul E.....	June 1945
Platt, Herman.....	June 1945	Farmer, Myron H.....		Foutz, Homer S.....	April 1945
Quinlan, John F.....	June 1945	Gallis, Anthony H.....	May 1945	Graves, Louis G.....	April 1945
Rivera, Gabriel A.....	June 1945	Hutchison, Sam L.....	February 1945	Gripkey, Clarence A.....	March 1945
Seely, Leslie J.....	May 1945	Peschau, John B. Jr.....	February 1945	Mott, James M.....	June 1945
Shachtman, Joseph M.....	June 1945	Swanson, Homer S.....	May 1945	Nash, Newman C.....	June 1945
Smith, Sydney K.....	December 1944	Watts, John W.....	June 1944	Stotts, Charles S.....	May 1945
Steinbach, Howard L.....	July 1945				
Waniata, George N.....	December 1944	Idaho		Kentucky	
Werner, Samuel.....	June 1945	Baldeck, Joseph E.....	June 1944	Downing, Robert E.....	June 1945
Whieldon, John A.....	April 1945	Hegstead, Ralph B.....	February 1945	Ellis, Edward W.....	
White, Wendell W.....	December 1944			Flaherty, Walter T.....	June 1945
Colorado				Hays, Jack D.....	May 1945
Baker, William N.....	April 1945			Kash, Vernon O.....	June 1945
Bonham, Claude D.....	April 1945			Kennedy, Archibald D.....	April 1945
Orsborn, George Jr.....	May 1945			Martin, William J.....	
Peake, William M.....				Zimmerman, Leo W.....	July 1945
Prior, Frank H.....	June 1945				
Connecticut				Louisiana	
Breck, Charles A.....	June 1945			Hirsch, Julian F.....	April 1945
Dean, Stanley R.....	April 1945			Howell, Robert P.....	June 1945
De Luca, Joseph.....				Moran, James A.....	
Eskwith, Irwin S.....	June 1945			Percy, Archibald E.....	April 1945
Gissler, Norman E.....	February 1945			Thames, John T.....	April 1945
Grigas, John E.....	May 1945			Wickstrom, Jack K.....	
Hall, Wendell C.....	March 1945			Wilensky, Louis A.....	December 1944
Hennessy, James J.....					
Kennedy, William C.....	January 1945			Maine	
Knepp, James W.....	August 1944			McCarthy, Robert J.....	June 1945
Lawless, Thomas F. Jr.....	March 1944			Michaud, Joseph H.....	March 1945
Lo Vetere, Angelo A.....	June 1945			Toussaint, Leonide G.....	July 1945
Mathews, Frank P.....	December 1944			Williams, Ralph E.....	March 1945
Mellion, Jacob.....	March 1945			Winchenbach, Francis A.....	November 1945
Padula, Vincent D.....	February 1945				
Parlato, Harry A.....	June 1945			Maryland	
Rapp, Albert G.....				Baxley, Joshua W.....	December 1944
Reichenbach, Frank.....	December 1944			Day, Newland E.....	March 1945
				Geheber, Dean W.....	May 1945
				Hankin, Samuel J.....	December 1944
				Young, Samuel F.....	April 1945

PHYSICIANS SEPARATED FROM SERVICE

Physicians	Date Discharged	Physicians	Date Discharged	Physicians	Date Discharged
Massachusetts		Nebraska		New York—Continued	
Bailey, Frederick J.	June 1945	Levine, Victor E.	January 1945	Kalamarides, John J.	June 1945
Barger, Abraham C.	December 1944	Merideth, John A.	June 1945	Kinney, Richard A.	May 1945
Charron, Rosario C.	July 1945	Price, Carroll P.	March 1944	Kurtz, Irving M.	July 1945
Faxon, Henry H.	July 1945	Scott, Henry A.	February 1944	Kurzrok, Irving L.	May 1945
Grossfeld, Seymour S.	July 1945	Teal, Frederick F. Jr.	February 1945	Labriola, Charles S.	April 1945
Hajjar, Solomon G.	May 1945	Zierott, Leroy L.	January 1945	Lederman, Solomon J.	June 1945
Higgins, Walter D.	May 1945			Lercher, Lawrence	May 1945
Kirk, Grover C.	March 1945	New Hampshire		Lickerman, Nathan	May 1945
Lavoie, Aurel G.	April 1945	De Veaux, Orwel F.	May 1945	Long, Rolfe D.	May 1945
McKoon, John W. Jr.	April 1945	Ferre, George F.	March 1945	Longstreth, Clyde M.	May 1945
Merrill, Bruce R.	April 1945	Hamel, Paul R.	July 1945	Losoff, Samuel	May 1945
Meyers, Marvin T.	April 1945	Powers, Harris E.	May 1945	Low, Solas J.	May 1945
Orlansky, George J.	May 1945	Powers, James J.	May 1945	Lubenstein, Herman	May 1945
Schube, Purcell G.	March 1945	Williams, Raymond A.	December 1944	Mahady, Stephen C.	June 1945
Schwartz, Abraham L.	April 1945			Marangoni, Bruno A.	March 1945
Shull, John C.	April 1945	New Jersey		McCann, William S.	May 1945
Siegel, Lewis	April 1945	Adam, Stewart L.	January 1945	McCormick, Robert R.	January 1945
Smith, Robert W.	June 1945	Adelman, Benjamin B.	May 1945	Milch, Elmer	January 1945
Vohr, Dorothy R.	July 1945	Artasarsa, George V.	June 1945	Mitchell, Roger S. Jr.	May 1945
Weiss, William G.	July 1945	Bleiberg, Jacob	June 1945	Moran, William H.	May 1945
Michigan		Boyd, James W.	March 1945	Myers, Lucien E.	March 1945
Armbruster, James W.	February 1945	Cartisser, Joseph J.	April 1945	Narins, Samuel R.	May 1945
Bates, Richard C.	April 1945	Colby, Maxwell X.	May 1945	Netter, Frank H.	May 1945
Berman, Sidney L.	April 1945	Costa, Philip L.	April 1945	Nocella, Rocco J.	April 1945
Boyt, Theodore	December 1944	Eckhart, William V.	June 1945	Okie, Melchior V.	May 1945
Cawley, Edward P.	June 1945	Landry, Ernest J.	April 1945	Osheroff, William	June 1945
Freid, Samuel	June 1945	Lang, Joseph	July 1945	Page, Robert C.	March 1945
Gill, Matthew J.	June 1945	Leff, William A.	June 1945	Petti, George H.	April 1945
Holmes, Roy H.	May 1945	Levin, Murray	June 1945	Podolsky, Edward	June 1945
Janci, Julius S.	May 1945	Levy, David	June 1945	Pomper, Irving	June 1945
Nelson, Alvin T.	April 1945	Lipton, Louis	April 1945	Posner, Adolph	March 1945
Rahm, Lambert P.	May 1945	Mensch, Harvey G.	May 1945	Powers, Robert W.	April 1945
Reder, Benjamin	May 1945	Olpp, John L.	May 1945	Prince, Arthur	May 1945
Salowich, John N.	April 1945	Rineberg, Irving E.	December 1944	Rabson, Salem M.	November 1944
Scharf, Lewis E.	May 1945	Strelinger, Alexander	June 1945	Rauch, Frederick M.	June 1945
Skolnick, Max H.	June 1945	Stokes, James S.	April 1945	Redston, Robert D.	April 1945
Woodford, Hackley	June 1945	Yager, Jacob A.	May 1945	Reich, Paul F.	May 1945
Minnesota		New Mexico		Reichel, Emanuel L.	December 1944
Elliott, William S.	April 1945	Cassidy, Franklin C.	February 1944	Rhoads, Cornelius P.	May 1945
Gordon, Philip E.	April 1945	Guilbert, Gerald D.	February 1944	Rosenbluth, Milton B.	April 1945
Keil, Marcus A.	July 1945	New York		Rosenthal, Abner H.	June 1945
Miller, Harold E.	March 1945	Alexander, Carter M.	March 1945	Schram, Maxwell	March 1945
Otten, Donald E.	April 1945	Altman, Valadimir	May 1945	Schultz, Benjamin	May 1945
Pollard, Donald W.	April 1945	Basso, Donato E.	May 1945	Secky, Harry J.	June 1945
Trach, Benedict	April 1945	Beaghtler, Harry E.	December 1944	Stein, Felix	July 1945
Williamson, George A.	April 1945	Bender, Michael N.	June 1945	Strahl, Merton P.	June 1945
Mississippi		Berk, Ralph	May 1945	Tadross, Victor A.	March 1945
Dorsey, Charles F.	August 1945	Bernstein, Irving	December 1944	Weinstein, Max V.	May 1945
Hines, Merrell O.	August 1945	Blank, Julius M.	May 1945	White, Abraham G.	May 1945
Mitchell, Charles B.	August 1945	Blum, Isador	June 1945	Wise, Charles S.	June 1945
Missouri		Broderick, Thomas C.	April 1945	Wolf, John S.	June 1945
Bangeman, John O.	June 1945	Brown, James F.	June 1945	Wormley, Lowell C.	May 1945
Davis, Phillips N.	March 1945	Chalecki, William E.	January 1945	Zabner, Joseph	May 1945
Dann, David S.	October 1942	Cheatham, Goode R.	May 1945	North Carolina	
Drasky, Stanley	July 1945	Core, Edwin R.	June 1945	Bennett, John W.	December 1944
Eckert, Charles L.	July 1944	Crater, Robert L.	July 1945	Cannon, Edward G.	March 1945
Gay, Lee P.	April 1945	D'Albora, John B.	June 1945	Fenner, Edwin F.	January 1945
Graham, Ottis L.	February 1944	Daversa, Benjamin	June 1945	Haar, Frederick B.	June 1945
Greenhouse, Jerome M.	April 1945	De Bono, Mandel	May 1945	Hardin, Parker C.	February 1945
Hargrave, Fred T.	May 1945	De Luca, Frank P.	May 1945	Horger, Eugene L.	December 1944
Haw, Marvin T.	June 1945	Ehrenpreis, Bernard	June 1945	Melton, Harry R.	September 1944
Hook, Waller G.	February 1945	Eller, William C.	May 1945	Murphy, Gibbons W.	March 1945
Leidler, Franz	May 1945	Ellis, John G.	December 1944	Newell, Hodge A.	February 1945
Mantz, Harry E.	May 1945	Fechtig, Frederick H.	June 1945	Pheips, John M.	June 1945
Martin, Thomas A.	May 1945	Fraud, Lewis M.	June 1945	Pillsbury, Henry C.	June 1945
McCall, Wheeler S.	July 1945	Frank, Simon C.	June 1945	Riley, Philander C.	October 1943
Murphy, Robert J.	June 1945	Governale, Vincent J.	July 1945	Sykes, Joy V.	January 1945
Richman, Elmer	May 1945	Groyer, Milton M.	November 1944	Tyndall, Robert G.	March 1945
Robb, Thomas P.	March 1945	Gurin, David	May 1945	North Dakota	
Rodriguez, Hesiquio	June 1945	Hansen, Wilhelm G.	June 1945	Burke, Charles H.	June 1945
Rothman, David	February 1945	Harris, Bernard B.	April 1945	Ohio	
Saunders, Everett L.	April 1945	Harris, Maurice C.	May 1945	Anker, Harry	May 1945
Sattersfield, Benjamin W.	November 1944	Hebert, Julien A.	July 1945	Berlesky, Harry S.	June 1945
Schaeffer, Hans	March 1945	Heinlein, John A.	May 1945	Bly, Frank H.	June 1945
Squibb, Joseph W.	May 1945	Held, Edward C.	May 1945	Breuer, Alfred	June 1945
Taft, George H.	April 1945	Hoffman, John L.	June 1945	Cassady, Louis P.	January 1945
Van Hook, Henry M.	April 1945	Hogg, Bruce M.	July 1945	Coleman, Benjamin	September 1945
Whitener, Paul R.	May 1945	Jacobs, Martin	April 1945	Davin, William A.	May 1945
		Jacobs, Norman F.	May 1945		
		Jensen, Leif G.	June 1945		

MISCELLANEOUS

FELLOWSHIPS IN PUBLIC HEALTH
AVAILABLE TO VETERANS

The New York State Department of Health has available a limited number of fellowships for physicians desirous of equipping themselves with the necessary field and academic experience for the practice of civilian public health on a full time basis. Six to twelve months of orientation and field work are provided under the guidance of experienced district state health officers followed by an academic year at a postgraduate school of public health where the master's degree in public health is earned. Fellowship provisions are generous and include tuition. Those completing the training are professionally qualified for appointment on the staff of most local and state health departments.

Applicants must possess certain basic qualifications, among which are United States citizenship, graduation from a medical school approved by the American Medical Association, internship of at least one year's duration in a general hospital approved for internship by the American Medical Association, and license to practice medicine in New York State or eligibility to take the examination to obtain such license. The upper age limit is 35 years.

Physicians interested in making application for a fellowship should write to the State Department of Health, Albany 1, N. Y.

WARTIME GRADUATE MEDICAL MEETINGS

California

A. S. F. Regional Station Hospital, March Field: Tumor Pathology, Dr. Edward Butt, October 16.

U. S. Naval Hospital, Santa Margarita Ranch, Oceanside: Penicillin in the Treatment of Syphilis and Gonorrhea. Lieut. Comdr. W. W. Duemling, October 11; Neurosurgery, Capt. Everett Dickinson, October 25.

U. S. Naval Hospital, Long Beach: The Streptococcus Problem, Lieut. Comdr. George R. Underwood, October 17.

U. S. Naval Hospital, Corona: Burns, Capt. H. T. D. Kirkbaum, October 11; False Biologic Reactions, Major Mark Beam, October 25; Allergies, Major Iredell Hinnant, October 25.

Letterman General Hospital, San Francisco: The Male Hormone: Clinical Indications and Mode of Administration, Dr. Hans Lissner, October 13.

Station Hospital, Camp Stoneman, Pittsburg: Suppurations of the Chest, Dr. Clayton G. Lyon, October 20.

Hammond General Hospital, Modesto: Diagnosis and Surgical Treatment of Brain Tumors, Dr. Edwin B. Boldrey, October 21.

Station Hospital, Fort Ord: Hemorrhagic States, Dr. Paul M. Angeler, October 27.

Regional Station Hospital, Oakland: The Use of Artificially Radioactivated Elements in Diagnosis and Therapy, Dr. Bertram V. Low-Beer, October 10.

New Mexico

Bruno General Hospital, Santa Fe: Symposium on Surgical Conditions of the Hand—Introduction of Subject: Major Frederick J. Fischer. Guest speaker, Major Lot D. Howard Jr., October 3. Symposium on the Pathogenesis of Tuberculosis—Introduction of Subject: Col. George J. Kastlin. Guest speakers, Drs. Arnold R. Rich, J. Burns Amberson and Col. Esmond R. Long, October 3. Symposium on Pulmonary Efficiency—Introduction of Subject: Major George C. Owen. Guest speakers, Drs. Andrew Courmand and Herbert C. Maier, October 4. Symposium on Sarcoidosis—Introduction of Subject: Major Samuel I. Kooperstein. Guest speakers, Drs. Arnold R. Rich, I. Snapper and J. Burns Amberson, October 4. Symposium on Surgical Diseases of the Spleen and Liver—Introduction of Subject: Dr. Kenneth E. Fry. Guest speaker, Dr. Allen O. Whipple, October 5. Symposium on Disseminated Vascular Disease—Introduction of Subject: Major Erich P. Hausner. Guest speakers, Drs. Arnold R. Rich and I. Snapper, October 5.

Pennsylvania

U. S. Naval Hospital, Philadelphia: Results of Penicillin Therapy of Syphilis in the European Theater, Col. Donald M. Pillsbury, October 5; Recent Advance in the Treatment of Acute Intestinal Obstruction, Dr. E. L. Eliason, October 26.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

ILLINOIS

Alexian Brothers Hospital, Chicago. Capacity, 261; admissions, 5,487. Brother Vincent, R.N., Superintendent (interns).
Women and Children's Hospital, Chicago. Capacity, 155; admissions, 3,538. Mrs. Edna H. Nelson, R.N., Superintendent (woman intern, October).

INDIANA

Lafayette Home Hospital, Lafayette. Capacity, 155; admissions, 3,751. Mr. T. E. Berg, General Manager (2 residents, mixed service).

KANSAS

University of Kansas Hospitals, Kansas City. Capacity, 400; admissions, 7,606. Dr. J. Harvey Jennett, Director (resident—anesthesia).

MICHIGAN

Saginaw General Hospital, Saginaw. Capacity, 151; admissions, 4,024. Mr. R. E. Raper, Superintendent (interns).

NEW YORK

Meadowbrook Hospital, Hempstead. Capacity, 275; admissions, 5,000. Dr. A. J. McRae, Superintendent (3 interns, April 1, 1946).

OKLAHOMA

University Hospitals, Oklahoma City. Capacity, 500; admissions, 6,610. Mr. Paul Fesler, Administrator (intern, October).

TENNESSEE

Nashville General Hospital, Nashville. Capacity, 337; admissions, 6,586. Mr. U. Phillips, Administrator (resident—ophthalmology-otolaryngology).

WEST VIRGINIA

Charleston General Hospital, Charleston. Capacity, 380; admissions, 10,439. Dr. John E. Cannaday, Director (interns).

CHINESE MEDICAL TRAINING
PROGRAM OF UNRRA

Dr. Leo Eloesser, who for more than thirty years was clinical professor of surgery at Stanford University, San Francisco, was recently assigned as teaching specialist in surgery for the Chinese medical training program of the United Nations Relief and Rehabilitation Administration.

The medical training project, which is part of UNRRA's relief program in China now rapidly getting under way, was planned jointly by UNRRA and CNRRA—the Chinese government relief agency—to train on a short term basis all types of workers to be used in emergency medical relief units. A detailed plan of operation for an emergency field medical service, which will utilize the trainees, has also been worked out by CNRRA and the Chinese National Health Administration.

Dr. Eloesser graduated from the University of Heidelberg, Germany, in 1907. He served as military surgeon in the United States Army in World War I.

APPOINTED DEPUTY DIRECTOR OF
HEALTH OF UNRRA

Dr. A. Hughes Bryan, formerly of Chicago, was recently appointed deputy director of health of the United Nations Relief and Rehabilitation Administration to succeed Dr. James A. Crabtree, who resigned effective September 10 to return to his duties with the U. S. Public Health Service. Dr. Bryan joined UNRRA in July 1944. Before his current appointment he was successively chief of the Nutrition Section and chief of Field Operations and Personnel in the Health Division.

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion. The Report of the Secretary, additional sections of the Report of the Board of Trustees and reports of some councils, bureaus and departments will appear in subsequent issues of The Journal.—Ed.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The Journal of the American Medical Association

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has adapted its pages to the needs of our country during the war period. A special section devoted to Medicine and the War has featured the work of the medical profession in the armed forces. Increasingly the pages of THE JOURNAL have reflected

current interest in social and economic problems related to medical practice. The prestige of THE JOURNAL is recognized by innumerable comments on items contained in its columns appearing in the newspaper and periodical press not only of this nation but of all the world.

Because of restrictions on paper supplies, no special effort to secure subscriptions was made in 1944; even so, 5,148 names

TABLE 2.—Percentage of Physicians Receiving The Journal*

State	Number Receiving Journal	Physicians in A. M. Directory	Approximate Percentage Receiving Journal
Alabama.....	924	2,123	44
Arizona.....	390	615	63
Arkansas.....	628	1,896	35
California.....	9,216	12,365	75
Colorado.....	965	1,886	51
Connecticut.....	1,713	2,720	63
Delaware.....	201	360	56
District of Columbia.....	1,732	4,510	38
Florida.....	1,465	2,391	61
Georgia.....	1,359	2,814	48
Idaho.....	248	446	55
Illinois.....	7,023	12,548	56
Indiana.....	2,211	4,165	53
Iowa.....	1,418	3,102	46
Kansas.....	1,070	2,042	52
Kentucky.....	1,089	2,717	40
Louisiana.....	1,287	2,601	49
Maine.....	454	1,011	45
Maryland.....	1,973	3,085	64
Massachusetts.....	4,287	8,085	53
Michigan.....	3,650	6,509	56
Minnesota.....	1,969	3,614	54
Mississippi.....	572	1,325	43
Missouri.....	2,697	5,183	52
Montana.....	273	556	49
Nebraska.....	921	1,637	56
Nevada.....	110	174	63
New Hampshire.....	346	687	50
New Jersey.....	3,546	6,008	59
New Mexico.....	272	447	61
New York.....	18,223	27,928	65
North Carolina.....	1,625	2,871	57
North Dakota.....	271	520	52
Ohio.....	4,774	9,406	51
Oklahoma.....	967	2,284	42
Oregon.....	814	1,493	55
Pennsylvania.....	8,367	13,503	62
Rhode Island.....	540	938	56
South Carolina.....	707	1,427	50
South Dakota.....	381	493	57
Tennessee.....	1,392	2,961	47
Texas.....	3,428	6,952	49
Utah.....	420	585	72
Vermont.....	271	551	49
Virginia.....	1,809	2,920	62
Washington.....	1,402	2,234	63
West Virginia.....	842	1,834	46
Wisconsin.....	1,915	3,551	54
Wyoming.....	139	263	53

* This table gives the number of physicians (based on the 17th Edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army, Navy and Public Health Service are not included.

were added to the mailing list during the year, largely because of increased numbers of subscriptions entered through the Office of the Surgeons General of the Army and Navy.

The net paid weekly average circulation in 1944 was 109,828, as compared with 103,733 in 1943. The weekly average of copies printed during 1944 was 111,386.

The accompanying table 1 shows the number of Fellows and subscribers on the mailing list of THE JOURNAL as of

TABLE 1.—Approximate Count of Fellows and Subscribers on The Journal Mailing List Jan. 1, 1945, Showing Gain or Loss

States	Fellows	Sub- scribers	Totals	Gain	Loss
Alabama.....	554	370	924	..	42
Arizona.....	234	156	390	..	12
Arkansas.....	360	268	628	15	..
California.....	4,741	4,475	9,216	610	..
Colorado.....	568	397	965	..	33
Connecticut.....	936	777	1,713	14	..
Delaware.....	110	91	201	..	..
District of Columbia.....	702	1,030	1,732	95	..
Florida.....	841	624	1,465	..	27
Georgia.....	703	656	1,359	..	13
Idaho.....	143	93	238	..	26
Illinois.....	3,734	3,289	7,023	133	..
Indiana.....	1,392	819	2,211	..	41
Iowa.....	1,022	426	1,448	..	26
Kansas.....	724	346	1,070	..	25
Kentucky.....	628	461	1,089	..	81
Louisiana.....	682	605	1,287	..	45
Maine.....	292	162	454	..	..
Maryland.....	914	1,059	1,973	133	..
Massachusetts.....	2,338	1,929	4,267	9	..
Michigan.....	1,937	1,693	3,630	..	20
Minnesota.....	1,189	780	1,969	80	..
Mississippi.....	312	260	572	..	90
Missouri.....	1,503	1,194	2,697	1	..
Montana.....	174	90	273	..	20
Nebraska.....	540	381	921	19	..
Nevada.....	62	48	110	..	..
New Hampshire.....	281	115	346	..	4
New Jersey.....	2,085	1,511	3,546	..	49
New Mexico.....	158	114	272	..	12
New York.....	9,596	8,627	18,223	1,758	..
North Carolina.....	849	776	1,625	..	20
North Dakota.....	182	89	271	..	..
Ohio.....	3,044	1,740	4,774	28	..
Oklahoma.....	585	384	967	..	27
Oregon.....	417	397	814	..	61
Pennsylvania.....	4,882	3,485	8,367	282	..
Rhode Island.....	321	219	540	..	53
South Carolina.....	403	304	707	..	18
South Dakota.....	171	110	281	..	6
Tennessee.....	701	691	1,392	..	60
Texas.....	1,946	1,482	3,428	..	7
Utah.....	237	183	420	..	25
Vermont.....	167	104	271	..	9
Virginia.....	1,032	777	1,809	..	115
Washington.....	826	576	1,402	..	4
West Virginia.....	534	308	842	..	..
Wisconsin.....	1,210	703	1,915	12	..
Wyoming.....	92	47	139	..	3
U. S. Army.....	..	2,678	2,678	662	..
U. S. Navy.....	..	2,500	2,500	1,000	..
U. S. P. H. S.....	..	120	120	..	32
Alaska.....	17	28	45	..	12
Canada.....	12	1,108	1,120	97	..
Cuba.....	4	330	343	51	..
Hawaii.....	100	123	223	10	..
Mexico.....	0	337	346	82	..
Panama.....	25	44	69	..	5
Puerto Rico.....	59	95	154	..	2
Virgin Islands.....	..	2	2	..	2
Foreign.....	44	3,165	3,209	977	..
Advertisers and agents.....	..	..	316	..	3
Exchanges.....	..	..	182	6	..
Complimentaries.....	..	..	97	..	..
Total on mailing list.....	..	..	113,600	6,144	996

Jan. 1, 1945, and table 2 indicates the number of physicians in each state, the number receiving *THE JOURNAL* and the approximate percentage of subscribers in each state.

Special Journals

As a result of the shortage of paper supplies, it became necessary to reduce the number of pages in each of the special journals. The editorial boards have endeavored to maintain the quality of material published in the journals to the highest degree possible. No special editions of any of this group of periodicals were published in 1944, although a request for one special edition has recently been received.

The reviews of the literature in the *ARCHIVES OF SURGERY* (Progress in Orthopedic Surgery and Urologic Review), the *ARCHIVES OF INTERNAL MEDICINE*, the *ARCHIVES OF OPHTHALMOLOGY* and the *ARCHIVES OF OTOLARYNGOLOGY* have been continued, and there is a considerable demand for the review on orthopedic surgery.

A shortage of manuscript editors has made increasingly difficult the production of numerous scientific publications of the Association during the war.

Each of the special journals enjoyed increased circulation in 1944, this being especially true of the *ARCHIVES OF INTERNAL MEDICINE*. The total increase in circulation for the whole group was 3,745.

Income derived from the publication of the nine special journals in 1944 exceeded cost by the sum of \$107,962.37 as compared with a gain in the previous year of \$47,451.06.

Hygeia

The position of *HYGEIA* in the field of health education is now recognized as one of leadership. In the schools *HYGEIA* is a most useful reference. From every issue of *HYGEIA* condensations and reprints appear in innumerable digest magazines. Its articles and editorials have been widely copied by newspapers and have been the basis of many references on the radio. The success of the periodical is now unquestioned and the recognition it has received makes important definite planning for expansion in the postwar period.

The total number of subscribers on the *HYGEIA* mailing list on Dec. 31, 1944 was 135,685, an increase of 34,174 over 1943. The average monthly net paid circulation during 1944 was 118,830 as compared with 115,846 in the preceding year. It is gratifying to note that the circulation of *HYGEIA* among physicians in the past year increased slightly.

For the fourth consecutive year income derived from subscriptions and the sale of advertising space in *HYGEIA* has exceeded the cost of publication. Net income in 1944 amounted to \$68,117.81. Similar income in 1943 was \$52,758.79.

Library

Requests for the loan of 10,836 periodicals were received and filled by the Library of the American Medical Association in 1944. The requests came from physicians in military service in this country and overseas and from civilian physicians in each of the forty-eight states. Chicago libraries also availed themselves of the service to a considerable extent, the American College of Surgeons having had the loan of 498 periodicals, the Medical Library of Northwestern University School of Medicine 172, the John Crerar Medical Library 338 and the University of Illinois School of Medicine 45. Periodicals and miscellaneous medical reprints were lent to 291 physicians serving with the armed forces.

About 2,000 package libraries were lent during the year. Approximately one fourth of the requests for this service came from physicians in the various military services of the United States. The subjects most frequently requested during the year were the Rh factor; penicillin; military medicine, including various phases of tropical medicine, aviation medicine, burns and malaria; blood pressure; sulfonamides; anesthesia, and blood transfusion. Approximately 200 requests were

received from physicians overseas, who stated that they were desperately in need of material on certain subjects. Although the loan service could not be extended to those overseas, it was possible in every case to send duplicate material in the form of tear sheets and reprints from publications of the Association, which the physicians could keep for permanent reference. Miscellaneous reference questions numbering 4,500 were answered by letter and telephone.

Order and Mailing Department

The total number of orders handled through the Order Department in 1944 amounted to 80,649, a much lower number than in the previous year, and the number of units distributed was 287,088. More than 5,000 mail bags were used for mailing the 151½ tons of mail with which the Order Department was concerned.

In addition to more than 416,000 pieces of first class metered letter mail sent out, over 25,000 pieces of air mail and overweight first class mail and nearly 700,000 pieces of third class mail were handled in the Mailing Department during 1944. These figures do not include the several thousand letters mailed directly from various departments in the Association's offices.

Quarterly Cumulative Index Medicus

Unprecedented delay was experienced in the publication of the *QUARTERLY CUMULATIVE INDEX MEDICUS* for 1944. Owing to circumstances beyond control, the usual July-September issue had to be omitted. The decision to omit this issue was made in an effort to speed publication of the July-December volume, copy for which was sent to the printing department the first week in January 1945.

Practically no periodicals from European countries were received during the year. Approximately 17,944 foreign articles were indexed in 1944, about 63 per cent of this total representing Spanish and Portuguese articles. The remaining items were indexed from microfilms. Many more microfilms are on hand to be indexed but, because of the lack of personnel, it is not possible to cover this type of material very rapidly. The Library department was maintained with ten less assistants than formerly, which increased tremendously the work and responsibility of the remaining staff.

The net loss sustained in the publication of the *QUARTERLY CUMULATIVE INDEX MEDICUS* in 1944 amounted to \$9,131.89 as compared with a loss in the preceding year of \$19,784.97.

Council on Pharmacy and Chemistry

A noteworthy accomplishment during 1944 of the Council on Pharmacy and Chemistry was the creation of a Therapeutic Trials Committee to aid in the clinical appraisal of new drugs of promise. The Council is of the opinion that its facilities for contacts should be used to advance clinical research. It seems at the present time that this should take the form of mediating between manufacturers and the clinics; that the work should be confined to new products of definite and manifest promise, on which adequate laboratory work is available; that the Committee should have full jurisdiction over the choice of products that it sponsors; that the costs incurred in the actual trials should be the subject of contract between the manufacturer and the clinic conducting the trials; that plans for the operation of this committee should be developed, but that they need not be put into effect until the proposed peacetime plans of the Office of Scientific Research and Development and perhaps others concerning research which have been presented to Congress have crystallized. Details of the plan will be made available for all interested parties.

COUNCIL PUBLICATIONS AND REPORTS

During the year about 35,000 copies of New and Nonofficial Remedies, Useful Drugs, the Epitome of the Pharmacopeia of the United States and the National Formulary, Annual

Reprints of the Reports of the Council and Glandular Physiology and Therapy were distributed. Of this number New and Nonofficial Remedies comprised over 18,000 copies.

The figures for 1944 bring up to almost 461,000 the number of publications sponsored solely by the Council which have been distributed over the last twenty-two year period. Included in this figure are 203,000 copies of New and Nonofficial Remedies, of which about 95,000 have been complimentary paper bound copies issued to students in recognized medical schools.

During the year the Council began a series of short statements designed to be of special interest to the general practitioner. These statements offer information on the status of topics such as penicillin, serums and vaccines and vitamins. This series was favorably received and will be continued.

In addition to adopting for publication monographs and descriptions of drugs accepted for inclusion in New and Nonofficial Remedies, the Council adopted for publication various reports concerning the use of drugs in the prevention and treatment of disease. Deserving special mention are reports on the status of prophylaxis by *Hemophilus pertussis* vaccine, laboratory and clinical appraisal of new drugs, the status of penicillin, the use of vaccines for the common cold (a joint report with the Council on Industrial Health), the use of the electron microscope in the study of pathogenic bacteria, rickettsias and viruses, the comparative cost of vitamin mixtures, the local treatment of thermal cutaneous burns (a joint report with the Council on Industrial Health), the untoward effects of endocrine therapy, a comparison of the apothecaries' and the metric system, the status of germicidal soaps, the status of the antimeningococcic serum and meningococcus antitoxin, and a description of membership, activities, method of operation and attainments of the Council on Pharmacy and Chemistry.

RESEARCH

In addition to establishing a Therapeutic Trials Committee and to initiating and sponsoring research resulting from certain phases of problems facing the Council in its considerations, the Council's Committee on Therapeutic Research, which considers applications for research grants, issued during 1944 twenty-one grants ranging from \$125 to \$500. Many articles have been published during the year as a result of work done under these grants. The figures for 1944 bring up to 536 the number of grants that have been issued since the formation of the Committee in 1911.

ANNUAL MEETING

The Council held its annual meeting in October. The topics discussed and actions taken included the formation of the Therapeutic Trials Committee, stability and labeling of phenarsine preparations, status of thionaril, recognition of proprietary and nonproprietary names, principles of the American Medical Association Cooperative Medical Advertising Bureau, the sale of endocrine preparations to the public, scope of the Council publication *Useful Drugs*, increase of the annual budget of the Council's Committee on Therapeutic Research, Spanish and Portuguese translations of New and Nonofficial Remedies, labeling and dispensing of digitalis and purified principles, advertising of contraceptives, continuation of reviews and other activities of special interest to the general practitioner, unnecessary length of advertising brochures, and relation of vitamins and coenzymes and sulfonamide therapy.

MEMBERSHIP

During 1944 Drs. David P. Barr and James P. Leake were reelected to membership, and Dr. W. Barry Wood Jr., professor of medicine, Washington University School of Medicine, St. Louis, was elected to membership to fill a vacancy.

On April 1 the Council lost one of its most active and helpful members and American medicine one of its respected teachers and research workers when death came to Dr. Robert A. Hatcher. As a member of the Council from its creation in 1905 until 1943 and from then until his death as member emeritus, Dr. Hatcher gave unselfishly of his time without

thought of personal discomfort and deprivation. His contributions to Council progress were many.

MISCELLANEOUS

The Council has continued to provide its services and findings for the prosecution of the war effort and has supplied information to and cooperated with governmental agencies, regulatory and advisory, and with other bodies and organizations concerned with important problems dealing with the health of the armed forces and the civilian population.

The Council continued to enjoy cooperative relations with many agencies of the federal government and other bodies, and with representatives of a number of allied countries. There seems to be increasing interest in the work of the Council and the information it can provide on the part of scientists and others in many foreign areas. Correspondence from this source is increasing.

The changes initiated in 1942 and 1943 to expedite Council considerations have been received favorably and found effective. During 1944 further streamlining was effected to permit the Council to move even more quickly.

Educational activities were continued, the Council and its office providing much information for the medical profession, the general population and special groups interested in health education activities, special exhibits for loan, numerous addresses before scientific and lay audiences and on the radio and participation in many meetings concerned with the development, distribution and use of drugs intended for the diagnosis, prevention and treatment of disease.

The Chemical Laboratory

The work of the American Medical Association Chemical Laboratory during 1944 was devoted almost exclusively to the examination of products submitted for consideration by the Council on Pharmacy and Chemistry. This situation, although not unusual in comparison to earlier years, was brought about by the fact that the Laboratory has been operating with a reduced scientific and nontechnical staff. In October the Laboratory marked the completion of thirty-eight years of service to the medical profession.

WORK FOR THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry calls on the Laboratory each year to examine a number of new substances and to aid in the elaboration of suitable tests and standards by means of which uniformity in their composition and action may be assured. In 1944 the Laboratory gave consideration to standards for such substances as digoxin, a cardiac glycoside; hexestrol and monestrol, new synthetic estrogens; into-crostrin, a curare extract; iso-par, an anti-infective for external use; neostam and neostibosan, organic antimony compounds employed in tropical medicine, and priodax, a water soluble radiopaque organic iodide.

In addition, the Laboratory examined many other products submitted to the Council. These were largely new dosage forms of substances currently described in New and Nonofficial Remedies or for which standards appear in the official compendiums the U. S. P. and N. F. A partial list of the various substances encountered in this work includes amytal, ascorbic acid, estrogenic substances in oil, diethylstilbestrol, insulin from zinc insulin crystals, ephedrine hydrochloride, merbromin, nikethamide, phenobarbital, pyridoxine, riboflavin, various sulfonamides and their sodium salts, theophyllide and vitamins A and D.

The Laboratory aided the Council in connection with the preparation of several monographs and descriptions of dosage forms of various drugs, which were published in *THE JOURNAL* during the year. Assistance also was provided in the revision of New and Nonofficial Remedies, 1944, and in replies to correspondence on chemical subjects and questions of nomenclature.

WORK FOR OTHER DEPARTMENTS OF THE ASSOCIATION

The Laboratory has cooperated with the Bureau of Investigation by providing technical advice and a limited amount of chemical examination.

The Laboratory continued aid to the Library staff in the classification of chemical substances under proper designations and has been of assistance to the editorial department, the advertising committee and to other departments by means of technical advice.

The Director of the Laboratory was called on to assist in connection with the physical arrangements for the meetings of the scientific sections during the 1944 annual session of the Association.

Council on Foods and Nutrition

Throughout the year 1944 the Council on Foods and Nutrition has been carrying out its policy of limiting its scope of acceptance to special purpose foods and those few general purpose foods which are considered of particular public health significance. Producers of accepted foods which have been declared outside the present scope have been requested to discontinue use of the Council Seal. Use of this seal is still permitted in connection with the acceptable educational advertising materials of various groups of the food industry engaged in providing nutritional information to the public.

The Council has continued to work in harmony with the various agencies of the government and other groups concerned with food problems related to the war. The advice of the Council on nutritional matters has been made available to branches of the armed forces. The federal enrichment program for baked goods has continued to receive the Council's support, and active efforts have been made by the members to provide for the continuance of these nutritional benefits after the present emergency.

PUBLICATIONS AND COUNCIL REPORTS

Early in the year the Handbook of Nutrition, which had been prepared under the auspices of the Council, came off the press. It has had wide distribution with the sale of 3,000 copies. A revised edition of the pamphlet Food Charts, prepared jointly by the Council on Foods and Nutrition and the Food and Nutrition Board of the National Research Council, was completed. This contained the most recently available data on food values and enrichment regulations.

A number of reports were published expressing the Council's views on the nutritional value of certain foods, providing data on processed foods and offering general nutritional information. Many food products are being fortified with multiple minerals and vitamins. Milk is one of these foods, and the Council published a report rejecting a fresh milk containing added vitamins and minerals which was submitted for acceptance. It is the Council's opinion that only the addition of vitamin D to milk is justified from the public health point of view. In another report the nutritional value of oleomargarine fortified with vitamin A was reaffirmed and announcement made that Council acceptance was being withdrawn from individual brands of margarine because of the limitation of Council scope to special purpose foods. The Council reported on a machine known as the "Mechanical Cow," which mixes dried defatted milk solids, fat and water for the production of reconstituted milk. The resulting milk product has high nutritional value, being an excellent substitute for fresh milk. A final report was made on the analytic study of vitamin B content of all types of prepared cereal products, as authorized by the Board of Trustees. Copies of this material have been in great demand. Through another report attention was directed to the high nutritional value of wheat and corn germ, with a presentation of data on the composition of these food substances. One further report served to point out the inadvisability of using any chemical preservatives as home canning powders, either because of lack of effective sterilizing action or because of destructive effect on the food. The Cooperative Committee on Industrial Nutrition of this Council and the Council on Industrial Health prepared an outline of the efforts

made by all groups for the improvement of industrial nutrition. A resolution was adopted and published, summarizing these actions and making recommendations for continued improvement.

COUNCIL MEETINGS

Two meetings were held during the year. Many subjects discussed concerned problems of vitamins, their addition to foods and their preservation in foods. The Council adheres to the policy of restorative addition of vitamins to staple foods of the diet, with limited exceptions where fortification to higher than natural levels is considered in the interest of the public health.

The Council is anxious to encourage the production of high quality natural foods. Consideration was given to the plan of granting use of the Seal of Acceptance to tomato juice of specified high natural vitamin C content. It was decided to do this and to extend this use of the Seal to citrus juices and other foods. A resolution was adopted encouraging the development of improved feeding methods of dairy cattle and the practical application of these methods to raise the vitamin A content of winter milk.

NUTRITIONAL CONSULTATION

The Council has made its services freely available during the year to any individuals or groups seeking nutritional information. Because of war shortages it has been necessary to make substitutions in the ingredients of some processed foods, and the Council's opinion has been sought regarding these changes. Guidance has been given in the development of new products to insure worthwhile nutritional value. The Council office serves as a clearing point for nutritional information to other departments of the Association and for correspondence from physicians as well as for the food advertising in medical and other scientific publications. Cooperation has been continued with the agencies of the government in support of the declared policies relating to foods and nutrition. Numerous state and local nutrition committees have availed themselves of the Council's educational materials.

GROUP DISCUSSIONS

The Secretary of the Council participated in the educational endeavors of organizations concerned with nutrition. Papers were presented at the annual meeting of the American Dietetic Association, and articles on nutrition were prepared for professional and lay publications. The Secretary represented the Association in discussions on food and nutrition held under the auspices of the Norman Wait Harris Memorial Foundation of the University of Chicago and in the organizational meetings of studies on air transportation of fresh fruits and vegetables sponsored by Wayne University of Detroit. Attendance at the meetings on the Food and Nutrition Board of the National Research Council has been made possible through the kind invitation of this group, with which the Council works in close harmony.

MEMBERSHIP

Col. John B. Youmans, at the present time Director of the Nutritional Division, Office of the Surgeon General, was elected to membership on the Council to take the place of Dr. Tom D. Spies, who served for a period of five years.

SEAL REVISED

The Council Seal of Acceptance was revised to have included on it the full name of "Foods and Nutrition."

Council on Industrial Health

The Council on Industrial Health has witnessed during the past year many evidences of extraordinary interest in the health of industrial workers and the growing vitality of the whole industrial health movement. Much of this interest involves provision of medical coverage for all kinds of sickness and disability. Industrial accident prevention and care, occupational disease control, health supervision over workers and their education into ways of hygienic living have received constantly

improved study and application. The Council believes sincerely that in no other field are there comparable opportunities to improve scientific medicine and the distribution of medical services and to awaken a real appreciation of the accomplishments of medicine on the part of a very large portion of the total population.

GENERAL RELATIONS

The International Labor Conference in Philadelphia in May 1944 and the resultant report on medical care convinced the Council that the International Labor Office will shortly resume its preeminent place in industrial health activity. It is intended to keep that organization acquainted with the various activities of the Council. The Council on Industrial Health believes also that it has an important role to play in the development and maintenance of satisfactory scientific and cultural relations with Canada and Latin America.

On the whole, the Council's relations with governmental agencies, especially those responsible for the conduct of the war, have remained unchanged. The activities of the industrial hygiene divisions of the Surgeon General's Office in the Army, of the Bureau of Medicine and Surgery in the Navy Department, of the U. S. Public Health Service and of the U. S. Maritime Commission have been followed through direct participation in these functions by members of the Council or through attendance at Council meetings by representatives of these services. The War Production Board, through its Office of Labor Production, has concentrated attention on courses in safety procedure and has informed many labor-management committees in war plants regarding the health and safety services open to them.

Contacts with labor and management have been improved, but the Council is not altogether satisfied with them. The present intention is to extend these relations to as influential sources as possible, having in mind the necessity for medicine to maintain a detached and independent view of many aspects of labor-management affairs. Experiences around the conference table so far lead to the hope that some form of regular liaison can be organized to permit frequent discussion of mutual problems.

The Council has taken the position that the expanding importance of health activities in industry demands that the physician be responsible directly to top management and that activities relating to health be centered in and directed through the medical department. This attitude will be brought to the attention of manufacturers and commercial interests.

PROFESSIONAL RELATIONS

The field activities of the Council on Industrial Health have been considerably curtailed through travel restrictions and loss of personnel, but activity reported by many of the committees on industrial health in the state and county medical societies has been most encouraging. Educational programs have been kept up, state medical journals have assigned more space to the subject and interesting experiments have received strong medical support. One of these, the Fort Greene experiment in Brooklyn, N. Y., uses labor-management committees in plants as a means of distributing health education material to workers and of building up interest in the establishment of adequate plant medical programs. In nearby Astoria the health department supplies industrial nurses to plants provided that they, in turn, employ a physician, maintain proper records and make suitable space and facilities available.

The committees on industrial health set up in sections of the Scientific Assembly of the American Medical Association have been relatively quiescent. Projects under way at present include an inquiry into the effect of occupation on the menopause, a study of upper respiratory infections in industry, the evaluation of disability in the upper extremities, acoustic trauma, psychiatry in industry, industrial ophthalmology and methods of evaluating detergents and protective creams, all of which are illustrative of the many contributions which consulting specialties can make to better care for workers.

Other professional groups—dentists, nurses, nutritionists, engineers and technicians—have a real stake in the industrial

health field. Appropriate matters are discussed jointly with official agencies representing these groups. The Council has reaffirmed its opinion that public industrial hygiene activity should reside in bureaus operated by health departments and that the services performed by these bureaus—the Division of Industrial Hygiene of the U. S. Public Health Service and similar divisions of state and local health departments—merit full support from the medical profession at large.

PROFESSIONAL EDUCATION

A joint committee of the Council on Medical Education and Hospitals and the Council on Industrial Health was recently set in motion. The discussion up to the present time has suggested that undergraduate teaching in the field of industrial medicine should stress orientation and guidance rather than complete coverage. Every effort will be made to encourage medical schools, medical societies and others to develop refresher courses for physicians. The question of approval of in-service training for physicians in industrial medicine was not entirely settled. Standards need to be formulated and separately considered. Preferably, such training should be offered in affiliation with an established educational institution or hospital. The committee was greatly impressed with the plans for graduate teaching in industrial health at Wayne University Medical Center and elsewhere which are based on suitable correlation between medicine, toxicology, chemistry, sanitation and other disciplines. The development of a certification program depends on the proper conduct of such advanced educational centers. In general, it was agreed that the Council on Industrial Health should continue to exercise initiative in all phases of medical education affecting industry and that this joint committee should meet periodically to discuss new developments and consider new policies and standards.

The seventh Annual Congress on Industrial Health was not held, owing to the ruling of the Office of Defense Transportation about conventions. It is hoped, however, to collect the papers scheduled for presentation at the Congress and publish them in an Industrial Health Number of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION as in past years.

Suggestions for motion pictures based on industrial health topics have been referred to the Council on Scientific Assembly in the hope that these can be prepared and distributed to interested professional and other groups.

INDUSTRIAL HEALTH EXAMINATIONS

The report on Industrial Health Examinations, which was approved by the House of Delegates in 1944, has since served as the basis for several interesting conferences with officials of the War Manpower Commission, the U. S. Civil Service Commission, the Office of Vocational Rehabilitation, the U. S. Public Health Service and labor, management and insurance groups. The return of many disabled persons to profitable employment has made it necessary to develop a selective placement program whereby physical capacity is matched as closely as possible with specific occupational requirements. Any successful plan must rest fundamentally on reasonable acquaintance of physicians with the nature of many jobs and on the proper interpretation of medical information by employment or placement officers. These discussions are likely to be one of the very significant contributions of the Council to the whole industrial health program and will involve studies and observations lasting over a number of years. In all other respects the Council expects to maintain leadership in the field of industrial health examinations and to continue to prepare supplementary reports on special kinds of physical examinations.

WORKMEN'S COMPENSATION

The Committee on Workmen's Compensation of the Council on Industrial Health was officially enrolled as an associate member of the International Association of Industrial Accident Boards and Commissions. Several conferences have been held with officials of that association, casualty insurance leaders, governmental agencies and others, and other meetings are in

prospect. Out of these discussions has come the recommendation that the Council on Industrial Health, the Bureau of Legal Medicine and Legislation, the Committee on Uniform Laws of the American Bar Association, the Legal Committee of the Industrial Hygiene Foundation and other interested groups collaborate on a model occupational disease law. Principles adequately reflecting the medical interests involved will be agreed on, and on that basis the Council has agreed to participate actively with these other groups. Conferences with these groups will pave the way toward simplification of report forms required by compensation commissions and insurance companies respecting industrial accident and disease.

Insurance companies have asked the Council to sponsor the preparation of reports on medical and surgical conditions about which questions most frequently arise in the adjustment of claims. The crystallization of prevailing medical opinion in these fields is regarded as a responsibility of the Council, and details for the formulation of such reports are being worked out currently.

The need of state medical societies for dependable aid and guidance in workmen's compensation affairs grows more evident daily. Such service can be supplied from the Council office on request because of ready access to relevant material in the files of the other Councils and Bureaus of the Association.

REHABILITATION

Rehabilitation is a major preoccupation of many official and independent agencies at the present time. Industry has always been concerned with the rehabilitation of its own injured and disabled. Now it is necessary to expand these facilities to expedite the reemployment of disabled veterans. In future years industry will deal more and more with the Federal Security Agency's Office of Vocational Rehabilitation as this agency expands its federal-state program. Since every rehabilitation problem rests fundamentally on medical diagnosis, disability evaluation and case management, the medical interest involved is enormous.

The Council on Industrial Health has therefore created a Committee on Medical Policy in Rehabilitation and Employment made up of its existing committees on Rehabilitation, Physical Examinations and Workmen's Compensation. This combined committee regards the following activities as essential if medicine is to occupy a position of leadership and influence in the rehabilitation picture:

1. A central clearing house will be established in the Council office to collect and disseminate information about the rehabilitation activities of all interested agencies.
2. Committees on industrial health or other appropriate units in state medical societies will be asked to maintain contact with the activities of state rehabilitation agencies. Other medical organizations will concern themselves with special procedures involving specific kinds of disability. Regular reports will be requested and will be used as a basis for integrated and correlated medical service.
3. Special reports will be prepared on various methods of restoration, on vocational guidance and training and on selective placement of the handicapped. Other educational services will be developed as indicated.

COOPERATIVE ACTIVITIES

In addition to the activities mentioned, the Council has asked and received cooperation from most of the established agencies of the American Medical Association. The Committee on Industrial Nutrition, created jointly with the Council on Foods and Nutrition, has concerned itself with the food requirements of workers, vitamin administration and, more recently, sanitary standards for preparation and serving of food. Reports on thermal burns and on cold vaccines were published in cooperation with the Council on Pharmacy and Chemistry. Matters relating to rehabilitation and resuscitation have been considered with the Council on Physical Medicine. Contacts with the Council on Medical Service and Public Relations have demonstrated many common problems needing joint consideration. On

many occasions the Council has profited through consultation with the Bureau of Health Education and the Bureau of Legal Medicine and Legislation.

HEADQUARTERS ORGANIZATION

Personnel and facilities to take care of the constantly enlarging scope of activities will be secured as soon as they become available. Assistance is necessary to conduct the field services of the Council, to promote the clearing house and special report program jointly with the consulting committees representing the sections of the Scientific Assembly and other societies and to develop the medical phases of workmen's compensation, reemployment and rehabilitation. Reorganization along these lines will result in much more effective service to the profession, to labor and to management.

INDUSTRIAL HEALTH SERVICE FOR FEDERAL EMPLOYEES

Hearings were conducted by a subcommittee of the House Committee on Civil Service relative to a bill which proposed to make available to employees of the federal government the same kind of medical service commonly provided by private industry. Representatives of the Council who were called to testify approved the intent of the legislation, since it conformed to standards developed by the Council and included safeguards characteristic of private industrial medical service plans.

PHYSICAL FITNESS

Much of the program of the Council lends itself directly to the promotion of positive health and physical fitness in the industrial population. The Council therefore is prepared to collaborate in all effective ways in the physical fitness movement and has been asked to participate in certain details of organization and education of employers and workers.

POSTWAR DEVELOPMENTS

The war has intensified interest in industrial welfare. The Council expects this interest to continue into the postwar era. In preparation, therefore, the Council has outlined lines of inquiry and development which will improve the contribution of medicine to industrial health and safety. The occupational dermatosis problem must be attacked through fundamental research and education. Serious limitations in personnel dictate the construction of training centers for industrial hygienists and toxicologists. Present trends indicate a strong demand for a practical industrial mental health program. The relationships of preventive medicine and public health administration to industry need clarification, having particular reference to case finding programs, immunization, nutrition, recreation and housing. Industrial physicians must know how to deal with active or latent tropical disease in applicants who present themselves for employment. The frequency and severity of industrial disabilities must be reduced through prevention and adequate case management. In the latter connection physical medicine, occupational therapy, functional exercise and reconditioning have much to offer. The place of the physician in industry, the trends toward the extension of industrial medical service to cover nonoccupational illness or injury, the labor-management approach to health and safety problems all call for elaboration of specific medical policy. The Council on Industrial Health, confronted with questions of this magnitude, believes that its career of useful activity has barely started.

Bureau of Health Education

Wartime difficulties which affected the work of the Bureau in 1943 were intensified in 1944, largely because of inavailability of adequate personnel.

CORRESPONDENCE

The Bureau mail was about the same in total quantity as in 1943. Correspondence with physicians and cooperating agencies increased from 2,724 to 3,825; question and answer letters increased from 6,065 to 6,598. Queries received from museums and exhibits dropped from 1,846 to 1,259, perhaps a reflection

of curtailed travel and canceled meetings. The total of 11,718 as compared with 11,259 the preceding year indicates little overall change in the volume of correspondence.

BUREAU PUBLICATIONS

The Director of the Bureau has prepared material for THE JOURNAL and for HYGEIA. Fourteen articles prepared by the Bureau were published in periodicals other than those of the Association.

RADIO

The radio work of the Bureau falls into four principal classifications: network broadcasts, electrical transcriptions, script library and special broadcasts.

The network program was continued into its eleventh consecutive year of dramatized broadcasting on a nationwide network of the National Broadcasting Company. Still keeping the theme and title "Doctors at Work," in 1944 the fourth "book" or series under this title was broadcast with the subtitle "Doctors at War." Beginning January 8 twenty-six programs were scheduled and twenty-three actually broadcast. Time was relinquished for a broadcast by the President of the United States on one occasion and on another for a recruiting program for the Cadet Nurse Corps by the Office of War Information. The closing program of the series, scheduled to be a pick-up by shortwave from foreign theaters of war, was canceled because it might have coincided (as it actually did) too closely with D day in Europe. An unsolicited letter of commendation from the Surgeon General of the U. S. Army was received when the program closed at the end of June:

WAR DEPARTMENT

Services of Supply
Office of the Surgeon General
Washington

28 June 1944

Dr. W. W. Bauer
The American Medical Association
535 North Dearborn Street
Chicago, Illinois
Dear Dr. Bauer:

With the close of this year's "Doctors At War" radio series I wish to again thank you and your colleagues for your excellent service to the Medical Department of the United States Army.

This program is consistently good and I know from the correspondence which I have personally received that it has inspired confidence and faith in the American public in the work of the Medical Department during this crucial war period.

Sincerely yours,
NORMAN T. KIRK,
Major General, U. S. Army
The Surgeon General.

The script library again shows a shrinkage. At one time there were available 1,000 titles divided among fifteen minute, ten minute and five minute talks. The demand for five minute talks dropped so low that as of Jan. 1, 1944 the five minute list was discontinued but the best talks in the list were combined by subjects and added to the fifteen minute list in a series of scripts entitled "Medical Echoes from Here and There." Each script in this series consisted of a contribution from two or more sources. Suggestions to local broadcasters were that several voices should be employed in broadcasting these scripts, thus giving more variety and interest to the presentation. Despite the shrinkage in this service, twelve state and county medical societies or their auxiliaries utilized the service for the first time in 1944. The total distribution of radio talks was 1,352 to a total of twelve county medical societies, seven county health departments, one hospital and one county nursing service.

Electrical transcriptions, first made available in 1943, constituted the most important development in the work of the Bureau in 1944. Starting with an experimental project broadcast over WLS, as described in the annual report for 1943, a series of sixteen programs was developed under the title "Before the Doctor Comes." At about the same time another series on wartime medical problems entitled "Medicine Serves America" was prepared. These constituted the nucleus of radio electrical transcriptions at the end of 1943. Also becoming available early in 1944 was a series of twelve interview recordings entitled "Dodging Contagious Diseases."

Early in 1944, in cooperation with the Chicago Public Schools, a series of twelve programs was developed under the title "Health Heroes." These were stories at the level of fourth and fifth grade elementary school children, each story containing a health lesson, first broadcast to the Chicago schools by FM radio. They were later rebroadcast for records. This series of records has been offered to the schools for permanent use at \$25 per set.

In the late spring of 1944 it became obvious that electrical transcriptions were going to be a success. Originally ten sets of each series were ordered, and these were distributed on a loan basis. It soon became apparent that more would be needed. Enthusiastic promotion by the medical societies of Arizona, Wisconsin, Texas and Pennsylvania and numerous loan applications from county medical societies and health departments depleted the loan stock so that it was increased, first to twenty, then to twenty-five and at last to thirty sets of each series. The loss by breakage and failure to return loaned sets has been surprisingly small. On the basis of the loan records it is estimated that in 1944 there were approximately 1,052 local broadcasts from these transcriptions. Because of the obvious and rapid growth of demand, the Board of Trustees made provision for the preparation of a series of dramatized recordings and for the purchase of additional pressings of series already in circulation.

During the summer of 1944 a dramatized series of twelve programs entitled "Live and Like It" was written and produced and is now in circulation in addition to the other series.

During the autumn of 1944 a series of interview and round table programs was recorded dealing with health problems in adult life and with the leading causes of aging and of death. This was entitled "More Life for You." In this series twenty-two prominent physicians were interviewed.

With continued evidence of the demand for transcribed broadcasts, the Board of Trustees in September 1944 authorized recording of the following series:

- A. "Guardians of Your Health," thirteen programs devoted to public health.
- B. "Keep Cool," twelve programs on summer health hints.
- C. Twelve additional dramatizations, possibly an extension of the series "Live and Like It."
- D. A series on child health problems other than communicable disease.

As usual, special radio broadcasts were arranged during the Chicago session. In spite of shortage of radio time due to high advertising sales and extensive governmental demands, to say nothing of a political campaign, broadcasts on the Blue Network, the Columbia Broadcasting Company, the National Broadcasting Company and local stations WIND, WCFL, WJJD and WAAF were made with the generous cooperation of the network and managers of the stations mentioned. The Presidents, outgoing and incoming, of the American Medical Association and Army and Navy medical officers made the broadcasts.

MEETINGS AND CONFERENCES

The Director traveled 27,375 miles to address audiences or attend meetings in nine states. Audiences addressed numbered eighty-nine and totaled 28,595 persons. In addition to audiences addressed, the Director participated in thirty-eight conferences and meetings. Thirty-three engagements were declined or had to be canceled because of previous commitments, travel difficulties or other causes.

HYGEIA CLIPPING COLLECTIONS

The large number of physicians in military service and the heavy demands on those remaining has decreased local speaking by doctors to lay audiences. Therefore, HYGEIA clipping collections were lent only 108 times in twenty-five states. The principal topic called for was "Ten Points in Healthy Living."

HEALTH PUBLICATIONS

Owing to the necessity for conserving paper, only a small number, twelve new titles, of new publications were added in 1944, while two titles were discontinued. The total distribution of Bureau publications was 217,879 items.

COÖPERATIVE RELATIONSHIPS

Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.—The 1944 meeting of this committee, held at the headquarters of the American Medical Association, was very successful. The committee elected Dr. Thurman B. Rice chairman to succeed Dr. Charles C. Wilson, Dr. A. J. Chesley secretary to succeed Dr. W. W. Bauer, and Dr. Duggan was elected vice chairman. Dr. Thurman B. Rice was reappointed for the five year term expiring in 1949. Dr. George M. Lyon was absent by reason of his duties in the U. S. Navy. Superintendent Willis A. Sutton and Dr. Glenville Giddings sent proxies.

Subjects dealt with on the agenda of the Joint Committee were as follows: Relationships of the Joint Committee to the National Conference on Cooperation in Health Education were discussed; the committee published a list of its publications with prices and information as to availability; the committee adopted a resolution on health education in secondary schools; the committee adopted a statement on wartime administration of drugs in schools prepared by Dr. Austin E. Smith; a hard of hearing report prepared by Howard A. Carter was submitted to a mail vote; a report on ultraviolet lamps for disinfecting purposes in schools was adopted and ordered published; a small subcommittee was appointed to endeavor to make a brief statement on food rationing and its effect on nutrition of school children.

U. S. Children's Bureau Advisory Committee.—The Advisory Committee to the U. S. Children's Bureau met in December. In November the Children's Bureau called a conference of official representatives of medical and other groups interested in the EMIC program.

The status of this program has not changed except in scope and size. The appropriation for the 1945 fiscal year was 40 million dollars, and it was expected that more than three hundred thousand wives of servicemen and their infants would be cared for. The position of the medical profession apparently remains unchanged, namely, complete accord with the purpose of care for servicemen's wives and children but dissatisfaction with the administrative methods of the Children's Bureau by which all blame for errors and mistakes falls on the local administrators and the major share of the credit for success goes to the federal agency. Some physicians are caring for soldiers' wives and infants gratis and declining to accept remuneration from the government, while others are cooperating in the program under protest.

The details of the situation reported to the Trustees in the 1943 annual report of this Bureau remain essentially unchanged and are therefore not repeated.

National Committee for Boys and Girls Club Work.—The work of this committee proceeds routinely, with nothing of special interest to report in 1944.

National Congress of Parents and Teachers.—The work of the National Congress of Parents and Teachers follows along the same general lines, but it becomes increasingly difficult and in many places impossible to have children examined because there are simply not enough doctors and dentists to make examinations.

American Public Health Association.—The Director continues to be active in the affairs of the American Public Health Association. He is serving as an elective member of the Governing Council for a three year term expiring in 1947 and is a member of the Committee on Professional Education, one of the association's major committees, as well as of the Accident Prevention Subcommittee of the Committee on Administrative Practice. He is chairman of the Health Education Section's Committee on Health Education in Hospital Outpatient Departments and Clinics.

At the 1944 meeting of the American Public Health Association there was adopted a report entitled "Medical Care in a National Health Program." This report practically called for compulsory federal health insurance. It was prepared by a subcommittee of the Committee on Administrative Practice,

adopted by the committee and adopted by the governing council of the association after that body had rejected a proposal that the report be received and a conference committee be appointed to meet with representatives of the American Medical Association and the American Dental Association. The report and an editorial comment were published in THE JOURNAL, Oct. 14, 1944.

National Conference for Cooperation in School Health Education.—This conference did not meet in 1944, but the executive committee functioned by correspondence and by informal conferences among its members at other meetings. Steps are being taken to procure financial support to conduct some studies in school health procedures in 1945. Mr. Mayhew Derryberry of the U. S. Public Health Service is chairman of the conference. The Director of this Bureau is a member of the executive committee.

U. S. Government Agencies.—The U. S. government agencies with which the Bureau has cooperated, or to which the Bureau has furnished information during the year, are as follows:

Federal Security Agency: Office of Education; Public Health Service. War Department (U. S. Army): Office of the Surgeon General; Office of the Air Surgeon; Army Service Forces; Bureau of Public Relations; Nutrition Research Laboratory; Army Nurse Corps; Liaison Office, War Department and American Medical Association; Preventive Medicine Service; Technical Information Branch.

Navy Department: Audiovisual Education Branch; Bureau of Medicine and Surgery; Public Relations Branch.

Department of Agriculture: Farm Security Administration; Agricultural Research Administration.

Department of the Interior: Office of Indian Affairs, Denver.

Department of Labor: Children's Bureau.

Office of Coordinator of Inter-American Affairs.

The United States Chamber of Commerce also has received the cooperation of the Bureau.

MISCELLANEOUS

The staff of the Bureau includes two trained guides, who made numerous tours of the building with guests.

The Bureau continued to compile information on medical research and to distribute it in response to requests.

The Bureau furnished questions and answers to *HYGEIA* for publication; forty-seven were published. In obtaining these answers, the Bureau consulted twenty-five experts outside the American Medical Association building. All *HYGEIA* galley proofs and page proofs were checked in the Bureau.

The Bureau continued its cooperation with the Woman's Auxiliary in its various activities.

The Assistant Director continues to be a member of the Medical Advisory Committee of the Chicago chapter of the American Red Cross and the Veterans Rehabilitation Committee of the Chicago Tuberculosis Institute.

On suggestion of the Joint Committee, the House of Delegates modified its resolution adopted in 1943 dealing with biology teachers. The Bureau is responsible for disseminating information on this matter and has done so to the best of its ability.

The postgraduate students from the U. S. Public Health Service and the Kellogg Foundation numbered 40 in 1944 instead of 29 as in the previous year. They spent a week at the Association's offices and were given an intensive course of instruction, observation and demonstration covering the work of the American Medical Association. They came this year from the University of North Carolina, University of Michigan, University of Illinois and the Health Department of the Province of Quebec. In addition to the large group, the following students spent several days or a week in similar individual observations: Dr. Herman San Martin of Chile, Drs. G. Castillo and Mario Queiroz of Brazil, Mrs. Mary Carr Baker of the Massachusetts State Health Department, Miss Frances C. Hunter of the California Department of Public Health, Miss Andromache Tsongas of the Harvard School of Public Health, Miss Elizabeth Dean of the Illinois State Health Department and Mr. I. R. Vaughn of the North Dakota State Health Department.

(To be Continued)

Washington Letter

(From a Special Correspondent)

Sept. 24, 1945.

Disabled Veterans Ask "B-29 Solution" of Artificial Limb Problem

While American servicemen get ultramodern medical treatment, those who lose a limb are fitted with "horse and buggy" artificial arms and legs, according to three medaled Walter Reed Hospital patients testifying before the Kelley Subcommittee on Aid to the Physically Handicapped, the chairman of which is Representative Augustine B. Kelley, Democrat of Pennsylvania. The three men dramatically stressed the need for a federal long range program toward developing improved artificial limbs. "We want the government to attack this problem just as it attacked the problem of building the B-29—by turning it over to technicians working on a full time basis," stated First Lieut. Sol Rael, 24, of New York, tankman, who lost an arm in Germany to a sniper's bullet, Howard Morse, 36, New York coast artilleryman, whose left leg was amputated after he was hit by shell fragments in the Philippines, and Irving Krieger, 34, East Orange, N. J., whose left leg was lost in a mine blast in France. Their comments came out in a spirited round table discussion with Representatives Kelley, William J. Green, Democrat of Pennsylvania, and Sherman Adams, Republican of New Hampshire.

Army Mismanagement of Medical Manpower Charged

Col. W. Paul Holbrook, testifying before the Senate Military Affairs Committee as an investigator to survey army medical needs, said that too few doctors had been used by the Army at the front and too many behind it. He claimed that the armed forces had taken 60,000 doctors for the 12,000,000 men in uniform and had left only 90,000 at home to care for 120,000,000 civilians. He declared that there were too many doctors for service personnel and that determining the number of physicians required on the numerical strength of units was a "fundamental fallacy" of the army system. Colonel Holbrook said that 50 doctors assigned to a 15,000 man infantry division were "far too many for preventive medicine to healthy young men, yet far too few on the field of battle." Despite this, he pointed out, this number of doctors was assigned to a division whether or not it was at the front or in an inactive theater.

More Hospitals and Doctors Required by Veterans Administration

Veterans Administration officials are now checking on additional hospital and medical personnel needs of the agency, expected to be heavy as increasing numbers of servicemen are discharged. Gen. Omar N. Bradley, new veterans administrator, with Major Gen. Paul R. Hawley, acting Veterans Administration Surgeon General, and Brig. Gen. H. B. Lewis, acting director of organization, and other aides, conferred at Atlanta, Ga., with agency officials from eight Southeastern states.

Navy to Release 1,678 Reserve Medical Officers

Vice Admiral Ross T. McIntire, Surgeon General of the Navy, informed the Senate Military Affairs Committee that the Navy would release 1,678 of its 12,000 reserve medical officers under the point system by January 1. He explained that they will be released at the rate of 880 a month, starting January 1, and that 8,000 will be out by the time the Navy researches its postwar goal of 550,000 officers and men next September 1. An effort will be made to keep medical discharges up to the pace of demobilization of fighting personnel.

Dr. Parran Maps Six Point Health Program for All Citizens

A six point program to provide "equal health opportunities for every citizen" was outlined by Surg. Gen. Thomas Parran of the U. S. Public Health Service at the 122d opening session of George Washington University School of Medicine. He was guest of honor at a luncheon given by Dr. Walter A. Bloedorn, dean of the school, at the Mayflower, attended by Army, Navy and District medical leaders. Dr. Parran's program called for (1) an integrated system of hospitals and health centers radiating from a central unit to smaller local and rural communities;

(2) sanitary environment, covering water, milk, food and sewage, which would eradicate such diseases as malaria; (3) intensified preventive disease programs, including expanded cancer control, dental, nutrition and nursing programs; (4) expanded medical research; (5) training of engineers, nurses, technicians and research workers, as well as doctors, to man postwar health armies; (6) health insurance and medical care, as provided in such legislation as the Wagner-Murray-Dingle bill and the Miller bill. Dr. Parran said that 121 bills coming up in the 79th Congress would cover his six point program. "It is a miracle," he said, "that the nation came through the war with no serious health impairment. We suffered no devastating epidemics; tuberculosis was held in check through intensive control efforts, and there was no overall increase in venereal disease."

DANGER OF DISEASE INCREASE IN DEMOBILIZATION

Dr. Parran warns that there is danger of a sharp rise in tuberculosis and venereal disease during demobilization, with millions of war working civilians and servicemen returning to areas where health services and facilities are depleted. "The control of communicable diseases, especially those spread by personal contact," he said, "will be more difficult than during the war, when the military authorities cooperated with the civilian agencies in applying the brakes to spread of infection." Dr. Parran advocated local and state rather than federal control of health problems. The freshman class of eighty-six included twelve women, largest feminine delegation in the history of the university.

Randolph Health Bill for Federal Employees Considered Again

The House Rules Committee has cleared the way for consideration on the House floor of the Randolph health bill for government employees. An hour's debate was ordered. The health bill, sponsored by Representative Jennings Randolph, Democrat of West Virginia, provides for setting up employee health program, including clinics in various government departments, at the direction of department heads. It would be part of a general programs, to promote physical and mental fitness of government employees such as is now carried out by a large number of business organizations.

Presidential Pool Too Deep for Poliomyelitis Patients

Sixty District of Columbia infantile paralysis patients who had hoped to use the White House swimming pool to improve their condition by swimming had the consent of President Truman, but it was found on inspection to be too deep and too small. The pool was formerly used by the late President Roosevelt.

Conference for International Health Organization Advocated by Senator Pepper

Senator Claude Pepper, Democrat of Florida, is pressing for action on his resolution for speedy convening of an international conference to establish a permanent international health organization.

Coming Medical Meetings

American Medical Association House of Delegates, Chicago, Dec. 3-6.
Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

American Ophthalmological Society, Hot Springs, Va., Nov. 12-14.
Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

Association of American Medical Colleges, Pittsburgh, Oct. 29-31.
Dr. Fred C. Zapffe, 5 S. Wabash Ave., Chicago, Secretary.

Delaware Medical Society of Wilmington, Oct. 8-10. Dr. W. H. Speer, 917 Washington St., Wilmington, Secretary.

Indiana State Medical Association, French Lick, Nov. 6-8. Mr. Thomas A. Hendricks, 23 E. Ohio St., Indianapolis 4, Secretary.

Kentucky State Medical Association, Lexington, Oct. 29-31. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.

New York Medical Society of the State of House of Delegates, Buffalo, Oct. 8-9. Dr. W. P. Anderton, 292 Madison Ave., New York 17, Secretary.

Omaha Mid-West Clinical Society, Omaha, Nebraska, Oct. 22-26. Dr. R. W. Fouts, 107 S. Seventeenth St., Omaha, Secretary.

Pennsylvania Medical Society of the State of House of Delegates, Philadelphia, Oct. 23-24. Dr. Walter F. Donaldson, 300 Penn Ave., Pittsburgh 22, Secretary.

Southern Medical Association, Cincinnati, Nov. 12-15. Mr. C. P. Loran, Empire Bldg., Birmingham 3, Alabama, Secretary.

Virginia Medical Society of House of Delegates, Roanoke, Oct. 22-23. Miss Aenes V. Edwards, 1200 Clay St., Richmond 19, Secretary.

Official Notes

COMMITTEE ON MEDICAL MOTION PICTURES

The Board of Trustees of the American Medical Association has appointed the following Committee on Medical Motion Pictures to study the problem of production, distribution and use of motion pictures in medical education and graduate medical instruction

Elmer L. Henderson, M.D., Louisville, Ky., chairman of the Committee on Scientific Exhibit, American Medical Association
Morris Fishbein, M.D., Chicago, Editor of THE JOURNAL
A. V. Franzblau, M.D., U.S. Public Health Service, Bethesda, Md.
Thomas S. Jones, Chicago, professor of medical illustration, University of Illinois College of Medicine
Dean F. Smiley, Commander (MC), U.S.N.R., Washington, D.C.
Thomas G. Hull, Ph.D., Chicago, Director of the Scientific Exhibit, American Medical Association

The following consultants have been appointed to assist the committee

Herman L. Kretschmer, M.D., President, American Medical Association
Victor Johnson, M.D., Secretary, Council on Medical Education and Hospitals, American Medical Association
Malcolm T. MacEachern, M.D., associate director, American College of Surgeons
Fred C. Zapffe, M.D., secretary, Association of American Medical Colleges

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

New Plan to Include Medical Care in the Home and Doctor's Office

The United Medical Service, Inc., has announced expansion of its program to include a group contract for the provision of medical, surgical and maternity care, including after-care, in the home and doctor's office as well as in the hospital. The expanded service will be limited to a maximum of 25,000 persons enrolled in groups of 50 or more in Associated Hospital Service of New York until further expansion is justified on the basis of actual experience. During the present trial period groups will be selected from widely separated communities in the area covered by the plan. Contracts for the service, which provides full coverage to families with incomes up to \$2,500 and partial coverage for all other enrolled subscribers, will be issued by United Medical Service to employers instead of to individual subscribers as in previous plans. Complete coverage for the expanded service will cost \$1.60 a month for individuals and \$4 a month for husband and wife, including any number of unmarried children under 18 years of age. Subscribers will be entitled to one visit a day from a general practitioner up to as many as twenty visits for any one illness, injury or pregnancy case. Additional visits may be authorized by United Medical Service.

United Medical Service will pay the participating physician \$2 for each visit from a subscriber to his office and \$3 for each visit he makes to the patient at home or in the hospital. For any call after 8 p.m. the physician may make an additional charge, which will not exceed \$2 for subscribers in the lower income brackets. For this group of subscribers such payments will constitute the participating physician's entire fee. Specialist services are provided when the subscriber is referred to a qualified specialist by his attending physician. In these cases United Medical Service will pay the specialist 50 per cent toward an established base rate fee. The specialist will not charge more than the remaining 50 per cent to subscribers with family incomes under \$2,500.

Income limits previously established by United Medical Service for complete benefits are \$1,800 yearly for individuals and \$2,500 for families. Subscribers whose incomes exceed these levels are entitled to partial payments against their bills with the proviso that persons earning between \$2,500 and \$3,500 a year may appeal to a board of physicians and they consider a

doctor's charges too high. It was announced that the contract is being offered to a limited number of subscribers as a test of its feasibility until such time as United Medical Service accumulates sufficient data for actuarial calculations. Contracts will be spread out over as wide an area as possible in order that, with the normal expectancy demand for medical care, no one physician will be likely at the present time to have more than a few subscriber families as patients. The Coordinating Council of the Five County Medical Societies of Greater New York issued a statement approving the project.

Bureau of Information

REPORTS RECEIVED FROM MOST COUNTIES

Twenty-five states have completed and returned summary sheets for all of their counties. Twenty-one additional states have submitted returns from some but not all of the counties in their respective states. Only Delaware, with three counties, Oregon, with thirty-six, and Rhode Island, with five, have not yet returned any summary sheets to the Bureau of Information.

A tabulation of returns from state and county medical societies, as of September 20, is presented herewith.

State	County Returns Complete		
	Number of Counties	Number of Counties Reported	Counties Unreported
Alabama	14	14	0
Arizona	70	70	0
Arkansas	8	8	0
California	1	1	0
Illinois	102	102	0
Indiana	92	92	0
Iowa	99	99	0
Kansas	100	100	0
Kentucky	120	120	0
Louisiana	64	64	0
Maine	16	16	0
Massachusetts	14	14	0
Minnesota	87	87	0
Missouri	110	110	0
Nevada	17	17	0
New Mexico	31	31	0
New York	62	62	0
North Dakota	50	50	0
Ohio	88	88	0
Oklahoma	67	67	0
Oregon	36	95	0
Utah	29	29	0
Vermont	14	14	0
West Virginia	20	20	0
Wisconsin	71	71	0
Total	1,494	1,494	0

Partial Returns of County Summary Sheets

State	County Returns Complete		
	Number of Counties	Number of Counties Reported	Counties Unreported
Alabama	67	65	2
California	28	24	4
Colorado	6	29	1
Florida	67	21	44
Georgia	130	71	59
Idaho	11	27	17
Maryland	4	15	9
Michigan	2	26	27
Mississippi	2	4	2
Montana	3	22	19
Nebraska	9	22	11
New Hampshire	10	8	2
New Jersey	21	9	12
North Carolina	100	37	63
South Carolina	77	61	16
South Dakota	46	25	21
Texas	62	62	0
Virginia	34	16	18
Washington	100	62	38
West Virginia	20	17	3
Wisconsin	71	34	37
Total	1,494	913	601

Since V-J day and even more since V-J day, medical officers or veterans recently separated from service are inquiring with increasing frequency for information which can be obtained from the county summary sheets. In order to supply the requested information, the Bureau must have on file the county summary sheets from all counties in the country. It is urged, therefore, that the states which have not yet returned summary sheets from all their counties do so at the earliest possible opportunity.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CONNECTICUT

Personal.—Dr. Henry B. Rollins, Hartford, associate medical director since 1931, has been named medical director of the Connecticut Mutual Life Insurance Company to succeed Dr. Charles B. Piper, Hartford, who has been made director emeritus after fourteen years in the position.

Construction of Hartford Hospital to Start Soon.—Approval has been given under a proposed building program given for the immediate construction of the Hartford Hospital, to cost \$6,500,000. The unit will include a new thirteen story main building. The work of clearing the site will start immediately, according to the September state medical journal, and it is hoped that the foundations may be completed before winter.

Medical Advisory Committee for Cancer Society.—The requirement that a majority of the trustees of the Connecticut Cancer Society must be members of the committee on tumor study of the Connecticut State Medical Society was dropped from the by-laws at the recent annual meeting of the society. Instead the cancer society will have a medical advisory committee of seven members, nominated each year by the committee on tumor study to initiate or consider all proposals for the use of the society's funds for medical purposes. Educational activities will be supervised by a public education committee of five members, while a finance committee of five business men will supervise the management of the society's funds. Dr. Abraham N. Creadick, New Haven, was elected president of the cancer society, Ira V. Hiscock, C.P.H., New Haven, vice president, Dr. Joseph O. Collins, Waterbury, secretary and Charles F. Lewis treasurer. Members of the medical advisory committee are Dr. Alfred L. Burgdorf, Hartford, chairman; Dr. Wilmar M. Allen, Hartford; Dr. Howard S. Colwell, New Haven; William U. Gardner, Ph.D., New Haven; Dr. Joseph I. Linde New Haven; Dr. George M. Smith, Pine Orchard, and Dr. Donald B. Wells, Hartford.

ILLINOIS

Personal.—Dr. and Mrs. Charles E. Trovillion, Alton, observed their fiftieth wedding anniversary August 19.—Dr. Edward R. Hays, Omaha, has been elected director of health education for the Evanston schools.

Chicago

Stewart Thomson Returns as Assistant Dean.—Dr. Stewart C. Thomson on September 10 resumed his activities as assistant dean of the Loyola University School of Medicine. Dr. Thomson was recently released from service, after serving for the past seventeen months as chief of the collection branch in the medical intelligence division of the preventive medicine service and as the liaison officer between the Office of the Surgeon General and G-2, War Department General Staff.

Application of Atomic Research to Disease.—An institute to apply the discoveries of atomic research to such problems as cancer, heredity and growing old has been established at the University of Chicago. Raymond E. Zirkle, Ph.D., Springfield, Ill., a botanist who has specialized in the effect of radiations on living organisms, will be in charge of the new department, the institute of radiobiology and biophysics. Members of the new institute will work in cooperation with the institute of nuclear studies. This arrangement is part of the university's plan to further fundamental research in fields which were kept secret or neglected during the war.

Lying-In Hospital Observes Fiftieth Anniversary.—A special program will be held October 29 at the Chicago Lying-In Hospital to observe the fiftieth anniversary of its founding. The hospital was established in 1895 by Dr. Joseph B. De Lee. In addition to clinics being conducted by members of the staff, the following will participate:

Dr. Frederick C. Irving, Boston, A Blood Bank for a Lying-In Hospital.
Dr. Edwin C. Hamblen, Durham, N. C., Some Contributions of Endocrinology to Obstetrics and Gynecology.
Dr. Norman F. Miller, Ann Arbor, Mich., Hysterectomy—Therapeutic Necessity or Surgical Racket?
Dr. Henricus J. Stander, New York, Teaching of Obstetrics and Gynecology.

KANSAS

Personal.—Dr. Thomas E. Johnston has resigned as medical director of the Security Benefit Association, Topeka, to become gynecologic surgeon for the Dr. Robert H. Adams clinic, Oklahoma City.—Dr. Grant R. Hastings, Garden City, has been named a member of the Kansas State Board of Health by Governor Andrew Schoeppel. Dr. Hastings will fill the unexpired term of Dr. John L. Lattimore, Topeka, ending in March 1946, resigned (*THE JOURNAL*, March 24, p. 723).

Changes at University.—Dr. Joseph E. Welker, associate professor of medicine, University of Kansas School of Medicine, Kansas City, has been appointed clinical professor. Drs. Don C. Peete, Arthur Graham Asher and Orval R. Withers, all of Kansas City, Mo., have been advanced to associate professorships in medicine and Dr. Albert T. Steegmann to associate professor in psychiatry. Dr. Benjamin L. Elliott, Kansas City, Mo., has been promoted to assistant professor of psychiatry.

Members of Health Education Council.—Dr. Ralph I. Canuteson, Lawrence, representing medicine, L. W. Brooks, Topeka, the state superintendent of education, and Dr. Floyd C. Beelman, Topeka, executive director of the state board of health, have been named as members of the Kansas Health Education Council to direct a statewide school health study (*THE JOURNAL*, March 24, p. 723 and July 21, p. 892). An advisory committee of some twenty members is to be named, the appointments to be made probably sometime in the fall, when more definite steps are expected to be adopted for pursuing the program.

KENTUCKY

Field Director of County Health Work.—Dr. Ralph Gregg, senior surgeon, U. S. Public Health Service, has been assigned to the Kentucky State Health Department to serve as field director in the division of county health work. Dr. Gregg, who recently returned from London, was formerly liaison officer to the Fifth Service Command headquarters at Columbus, Ohio.

MICHIGAN

Courses in Public Health.—The University of Michigan School of Public Health, Ann Arbor, is announcing an inservice training course in environmental controls for industrial processes October 2-4, with special reference to metal working industries. Another course will be held October 8-11 on public relations, staff education and community health education for health directors. Additional information may be obtained from the School of Public Health Building, 109 South Observatory Street, Ann Arbor.

Physician Wins Reversal of Sentence.—Dr. Fred W. Thomas, Detroit, on September 17 won reversal of a sixteen year sentence imposed in 1944 in Detroit on a charge of conspiring to violate the wartime espionage act (*THE JOURNAL*, July 8, 1944, p. 729). The sixth circuit court of appeals, meeting in Cincinnati, citing error in a charge delivered by District Judge Edward J. Moinet, ordered retrial of the case, newspapers reported. The opinion reversing the original decision set forth that although Dr. Thomas was charged with "conspiracy" to violate the act, Judge Moinet had told the jury he was charged with violation of the statute. The physician was accused of supplying Germany with espionage information of war production and troop movements.

MINNESOTA

Award to Civilian for Service to Army Air Forces.—In recognition of his contribution to the Army Air Forces and the nation's war effort, Edward J. Baldes, Ph.D., Rochester, recently received the army's highest award that is available to civilians, according to the *Clinic Bulletin*. The citation accompanying the ribbon was signed by Secretary of War Henry L. Stimson and was presented at an outdoor ceremony in front of the Aero Medical Laboratory at Wright Field, Dayton, Ohio, by Brig. Gen. L. C. Craige, chief of the engineering division of the Air Technical Service Command. The citation was given in recognition of his work in the design of special centrifuge devices. His exceptional ability and outstanding service have contributed immeasurably to the flying safety of American aviators and provided the Army Air Forces with the finest scientific knowledge available.

NEW YORK

James McCartney Opens Neuropsychiatric Clinic.—Dr. James L. McCartney is opening a clinic in Garden City, where he will place special emphasis on the neuropsychiatric problems of returned officers and their families. Dr. McCartney, who was released from active duty in the Navy September 10, was serving as chief of the neuropsychiatric department of a naval base hospital in the Marianas Islands.

Memorial at Buffalo Hospital.—A total of \$98,700 was subscribed to the building fund of Buffalo General Hospital, Buffalo, by Spencer Kellogg and Sons and Mr. and Mrs. Howard Kellogg Sr. Of the total gift, \$67,500 is to be used to build, furnish and equip an intern's laboratory, basal metabolism department and a chemistry lecture room on the second floor of the hospital, all to be dedicated to the memory of Spencer Kellogg, founder of the company. Two nurseries on the tenth floor will be established with the \$24,000 gift of Mr. and Mrs. Kellogg, also to be memorials to relatives of the Kellogg family. The remainder of the gift will be used to dedicate a 4 bed room in memory of members of the family.

Mental Hygiene Lectures.—"The Mental Hygiene of Personal Counseling" will be the theme of an institute at the Hotel Onondaga, Syracuse, beginning September 24. The course is designed for physicians and interested lay persons and includes:

- Lawrence K. Frank, director, Fochy Institute, New York, Mental Hygiene Aspects of Family and Social Life, September 24
- Dr. Evie E. Welsh, director, Child Guidance Center, Rochester, Mental Hygiene Aspects of Growing Up, October 1
- Luther E. Woodward, Ph.D., field consultant, National Mental Hygiene Committee, New York, Interviewing and Counseling Methods, October 8
- Dr. Helen Flanders Dunbar, director of psychosomatic research, Presbyterian Hospital, New York, Psychosomatic Reactions in Interpersonal Relations, October 17
- Dr. Matthew Brody, consulting psychiatrist, Sperry Gyroscope Company, Brooklyn, Industrial Psychiatry, October 22
- Dr. George K. Pratt, psychiatrist, Westport, Conn., Personality and Emotional Disorders, October 29
- Dr. Edward A. Strecker, professor of psychiatry, University of Pennsylvania School of Medicine, Philadelphia, Alcoholism, November 5

Seminars on Rheumatic Fever and Rheumatic Heart Disease.—The St. Francis Sanatorium for Cardiac Children, Roslyn, announces a course of seminars on rheumatic fever and rheumatic heart disease Tuesday and Thursday of each week beginning October 2 and ending November 1. The course will cover epidemiology, prevalence, etiology and immunology; pathology; clinical course of disease; laboratory aids in diagnosis; public health aspects and care and management. The faculty will be:

- Dr. Cary Eggleston, associate professor of clinical medicine, Cornell University Medical College, and New York Hospital, New York
- Dr. Oswald Lenton Hedley, surgeon, U. S. Public Health Service
- Dr. Thomas Duckett Jones, assistant professor of medicine, Harvard Medical School, Boston, House of Good Samaritan
- Dr. John Rollman Paul, professor of preventive medicine, Yale University School of Medicine, New Haven, Conn.
- Dr. Homer Lordyce Swift, Hospital of the Rockefeller Institute of Medical Research, New York
- Dr. Leo M. Taran, medical director, St. Francis Sanatorium for Cardiac Children, Roslyn
- Dr. William Carson Von Glinn, director of pathology at Bellevue Hospital and professor of pathology at New York University College of Medicine
- Dr. Max Georgiana Wilson, associate professor of clinical pediatrics, Cornell University Medical College and New York Hospital

New York City

Personal.—Dr. William A. Boyd recently observed his fiftieth year in the practice of medicine. Dr. Boyd was the first vice president of the Bronx County Medical Society when it was chartered. He was one of the organizers of the Bronx Medical Association, serving as its president in 1910 and later as treasurer.

Brooklyn Cancer Committee.—The Brooklyn Cancer Committee was recently organized, with Dr. Samuel Potter Bartley as chairman, to carry out a comprehensive lay program of education on cancer control. Dr. Bartley is chairman also of the cancer committee of the Medical Society of the County of Kings. An advisory council has been set up consisting of thirty-two Brooklyn physicians.

Special Committee on Psychosomatic Medicine.—The Medical Society of the County of New York has created a special committee on psychosomatic medicine to be composed of Drs. Carl A. L. Binger, chairman, Harold G. Wolff, Edwin G. Zahrbick and George E. Daniels. While a general program has not yet been formulated, the new committee will probably aid physicians in general practice in meeting psychosomatic problems encountered in their daily work.

Dean Clark Named Medical Director of La Guardia's Health Plan.—Dr. Dean A. Clark, assistant director, public health methods division, senior surgeon, U. S. Public Health Service, has been granted a leave to become medical director of the Health Insurance Plan of Greater New York, the health insurance project sponsored by Mayor Fiorello La Guardia (THE JOURNAL, Nov. 4, 1944, p. 648). Dr. Clark took up his new activities August 1, according to *New York Medicine*.

Adolf Magnus-Levy Honored.—On September 10 a reception was held at Sherry's to honor Dr. Adolf Magnus-Levy on his eightieth birthday. Dr. Magnus-Levy, who came to the United States from Germany about four years ago, is known for his researches in metabolism and on acidosis. Dr. Emanuel Libman gave the introductory address, and other speakers included Dr. Eugene F. Du Bois, professor of physiology, Cornell University Medical College, and Dr. Kurt M. Grassheim, a pupil of Dr. Magnus-Levy. Dr. Magnus-Levy joined the staff of Yale University, New Haven, Conn., in 1941 as research associate in physiology.

Friday Afternoon Lecture Series.—The twentieth series of Friday Afternoon Lectures of the New York Academy of Medicine starts as follows:

- Dr. Hattie Elizabeth Alexander, Treatment of Influenza Bacillus Infections in Childhood, November 2
- Dr. Edward Tolstoi, Diabetes, Newer Aspects of Management, November 9
- Dr. John R. Paul, New Haven, Conn., Infectious Hepatitis (A. Walter - Suiter Lecture under auspices of the committee on public health relations), November 16
- Dr. Cary Eggleston, Newer Chemotherapeutic Agents, November 30
- Dr. William Dock, Senescence of the Myocardium—Presbycardia, December 7
- Dr. Arthur C. DeGraff, The Therapeutic and Toxic Actions of Some Drugs Recently Introduced in the Treatment of Cardiac Disorders, December 14
- Dr. Ralph L. Barrett, Hemorrhages in the Viable Period of Pregnancy, December 21

OHIO

Personal.—Dr. Arda Alden Green, formerly assistant professor of biochemistry in the Washington University School of Medicine, St. Louis, is now associated with the research division of the Cleveland Clinic. Dr. Green's latest important contribution has been the successful crystallization of phosphorylase from muscle. She will continue biochemical investigation in connection with vascular disease.—Dr. C. Herbert Cronick has resigned as medical director of the Youngstown Receiving Hospital for Mental Cases; the hospital was recently leased by the state department of public welfare (THE JOURNAL, January 6, p. 46).

Cincinnati Academy Opens Scientific Season.—The annual meeting of the Academy of Medicine of Cincinnati was held September 18 and marked the opening of the academy's program for the coming year. Among the speakers at the forthcoming sessions will be:

- Dr. Marion A. Blankenhorn, Cincinnati, October 2, Persistent Problems of Pneumonia
- Dr. George A. Schwemlein, Chicago, October 16, The Present Status of Penicillin in the Therapy of Syphilis
- Dr. Jerome W. Conn, Ann Arbor, Mich., November 6, Some Problems Related to Insulin Action
- Dr. George T. Pack, New York, November 20, The Extension of Radical Surgery in the Treatment of Cancer
- Dr. Jules H. Masserman, Chicago, December 4, Experimental Approach to the Understanding of Neurotic Symptoms

PENNSYLVANIA

District Meeting.—The annual meeting of the Second Councilor District of the Medical Society of the State of Pennsylvania was held September 5 in Lancaster. Speakers included:

- Dr. William Bates, president, state medical society, Philadelphia, The Activities of the State Medical Society
- Dr. Chumcey L. Palmer, Pittsburgh, Comments on Proposed Social Legislation
- Dr. Chevalier L. Jackson, Philadelphia, Current Trends in the Diagnosis and Treatment of Bronchial Disease

Fifty year testimonials will be presented to the following by Dr. Walter F. Donaldson, Pittsburgh, secretary of the state medical society:

- Dr. Irvin H. Hartman, Reading
- Dr. Samuel Banks Taylor, Reading
- Dr. Leroy Y. Lechner, Bechtelsville
- Dr. Henry A. Rothrock, West Chester
- Dr. Mary McD. Shick, Elwyn
- Dr. Thomas E. Wills, Pottstown

The county medical societies of Berks, Bucks, Chester, Delaware, Lehigh and Montgomery compose the Second Councilor District.

Philadelphia

Industrial Health Problems.—The industrial hygiene bureau of the Pennsylvania Department of Health sponsored a conference on industrial health problems at the Benjamin Franklin Hotel, September 25-26. Among the speakers were:

- Lyman D. Heacock, senior dental surgeon, U. S. Public Health Service Reserve, Prevention of Oral Diseases of Occupational Origin.
- Dr. Louis Schwartz, medical director, U. S. Public Health Service, Prevention of Industrial Dermatoses.
- Dr. Charles Francis Long, Philadelphia, Illness in Industry.
- Dr. Glenn S. Everts, Philadelphia, Industrial Health in Small Plants.
- Dr. Harvey Bartle, Philadelphia, Medical Criteria in the Reconversion Program.
- Mr. J. J. Bloomfield, senior sanitary engineer, U. S. Public Health Service, Integration of Industrial Health in the Public Health Program.
- Dr. Victor G. Heiser, New York, Value of Industrial Health to Management.
- Dr. Leonard A. Kagen and Mr. E. L. Schall, industrial hygienist, Trenton, N. J., Environmental Conditions in Plants Molding Lead Plastic Bullets.
- Dr. C. Charles Burlingame, Hartford, Conn., Mental Health in Industry.
- Dr. Charles F. Kutscher, Pittsburgh, Industrial Ophthalmology.

WASHINGTON

Tuberculosis Building Commission.—The last legislature appropriated a three million dollar fund to construct tuberculosis institutions in Washington and provided for the creation of a state tuberculosis building commission. Members of the commission named by Governor Wallgren include Tom Jones Parry, Seattle, advertising executive; Dr. Ottar A. Thomle, Everett; Louis Schaefer, Vancouver, attorney; Lloyd L. Wiehl, Yakima, county prosecutor; Ab Ruhl, Spokane, union executive, and Arthur H. Brouse, Tacoma, bank executive.

State Health Department Activities.—Dr. S. Harvard Kaufman, formerly psychiatric consultant with the Children's Aid Society and Children's Service Bureau in Pittsburgh, has been appointed director of the mental hygiene section of the Washington State Department of Health. The section was transferred from the division of local health services to the division of preventive medical services and constitutes a continuance of reorganization of the state department of health (THE JOURNAL, February 3, p. 288). Dr. George C. Stevens, who was head of the mental hygiene section when it was created, has resigned to engage in private practice in Seattle. The reorganization includes the establishment of a division of public health nursing with Anna R. Moore, R.N., chief, a venereal disease control section with Dr. Walvin R. Giedt as acting head and an epidemiology section with Dr. Giedt as head. Both of these sections are in the division of preventive medical services, and the public health nursing division was formerly a section under the division of local health services and the venereal disease control and epidemiology sections formerly were a part of the communicable disease control section. The state department of health announces the issuance of a new stillbirth certificate to be used in the state as authorized by the last session of the legislature. Under the new definition, all births occurring without evidence of life after the twentieth week of gestation will be regarded as stillbirths. This is in contrast to the seven month figure as given in the old law. After September 1, only the new certificate will be acceptable for filing a stillbirth.

WEST VIRGINIA

Personal.—Major Michael G. Hresan, M. C., Minden, is serving as physician to Arthur Bliss Lane, American ambassador to Poland, and the members of his staff, at Warsaw. According to a letter received by the West Virginia State Medical Association from Major Hresan, he is the first American officer to be stationed in Warsaw since 1939.

WISCONSIN

\$25,000 for Cancer Research.—The governor recently signed a bill appropriating \$25,000 annually "for study of and research into the causes, prevention and cure of cancer and for the purchase of necessary apparatus and supplies for the purpose of carrying on such study and research." The appropriation was earmarked for July 1.

Albert Edwards Named Health Officer of Racine.—Dr. Albert C. Edwards, Port Huron, Mich., director of the St. Clair County health department, has been named health officer of Racine, to succeed Dr. Ira F. Thompson, who resigned (THE JOURNAL, June 30, p. 678). Dr. Edwards graduated at the University of Nebraska College of Medicine, Omaha, in 1925. He was formerly employed by the Wisconsin State Board of Health and at one time served as director of the district health department number 5 at White Cloud, Mich.

GENERAL

Export and Import of Narcotic Drugs.—The Bureau of Narcotics, U. S. Treasury, on August 24 released a statement concerning the granting of permits to import or export narcotic drugs. Additional information may be obtained from the Bureau of Narcotics, Washington 25.

Ambulatory Fracture Meeting.—The Ambulatory Fracture Association will hold its sixth annual meeting in the Club Building at the Palmer House, Chicago, October 26-27. The meeting will be continued in Bloomington, Ill., October 29-30, where operative clinics and clinical conferences will be held. Dr. Alvin H. Diehr, St. Louis, is president of the association and Dr. Hermann W. Wellmerling, Bloomington, secretary-treasurer.

National Employ the Physically Handicapped Week.—President Truman on August 11 signed a bill which sets apart the first week in October of each year as National Employ the Physically Handicapped Week. The observance was set up in H. J. Res. 23 and is now Public Law 176. Appropriate ceremonies are to be held throughout the nation to enlist public support for an interest in the employment of otherwise qualified but physically handicapped workers.

French Radiologists Ask for Reprints.—Radiologists in France have appealed to radiologists in the United States to send them reprints from 1939 of their articles concerning radiology (diagnostic), roentgen therapy, radium therapy and neutron therapy, electrodosimetry and cancerology. The appeal was written to Dr. Ursus V. Portmann, Cleveland, by Dr. Robert Coliez, president of the Hospital Radiologists of Paris, who requests that reprints should be addressed to him at 25, Rue Franklin, Paris, XVIème.

Biologists Urge Educational Program on Experimental Work.—The Pacific Coast Section of the Society for Experimental Biology and Medicine recently passed a resolution endorsing the creation of a bureau of public relations to educate the public concerning current legislation and campaigns to limit biologic experimentation. One resolution stated that the section deplored "the campaign being waged at this time to limit biological experimentation by means of antivivisection legislation in state and in national legislatures."

Association of Military Surgeons.—The Association of Military Surgeons of the United States will hold its next annual session in Detroit Oct. 9-11, 1946. The 1945 meeting was deferred. Any correspondence relative to the scientific program should be addressed to Dr. William D. Ryan, 5837 West Vernor Highway, Detroit 4, and any correspondence relative to the commercial exhibits should be addressed to Mr. Steven K. Herlitz, 280 Madison Avenue, New York 16. Major Carleton Fox, Dental Reserve, U. S. Army, is the general chairman, 557 David Whitney Building, Detroit 26.

Examination in Obstetrics and Gynecology.—The next written examination and review of case histories (Part I) for all candidates will be held in various cities of the United States and Canada on Saturday, February 2. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year. All applications must be in the office of the secretary of the American Board of Obstetrics and Gynecology by November 1. All candidates are now required to be out of medical school eight years, and in that time they must have completed an approved one year internship and at least three years of approved special formal training, or its equivalent by the preceptorship method under a recognized obstetrician-gynecologist or a specialist certified by this board, in the seven years following the intern year. Additional information may be obtained from the secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

Insurance Company Launches Campaign Against Cancer.—The Metropolitan Life Insurance Company will conduct a special campaign for the control of cancer during October. The program will include the distribution to practicing physicians of a special packet of new information on cancer, including the booklet of the American Cancer Society entitled "The General Practitioner and the Cancer Patient," a reprint of recent studies of cancer mortality prepared by the company's statisticians; a reproduction of the company's educational advertisement "Cancer Has Its Hopeful Side!" and a copy of the company's new leaflet for laymen "There is Something You Can Do About Cancer." According to an announcement from Metropolitan, in the past decade the age adjusted death rate from cancer insured white females dropped 11 percent at ages 1 to 74. The current mortality from the disease among women in the broad age range 35 to 64 is the lowest

in a third of a century, having dropped by one fifth during that period. Among white male policyholders, during the past decade, at no age beyond 25 years has the cancer death rate shown any increase.

Thomas Gentry Named Medical Director of American Airlines.—Col. Thomas C. Gentry, surgeon, 14th Air Force, M. C., United States Army, has been appointed medical director of the American Airlines, Inc., effective September 1. He succeeds Lieut. Col. Edward C. Greene, M. C., U. S. Army, retired. Following his graduation at Baylor University College of Medicine, formerly of Dallas and now of Houston, Dr. Gentry entered the army medical corps as an intern and in 1931 he graduated from the School of Aviation Medicine as a flight surgeon. In 1934 he resigned his army commission to enter private practice at Hamlin, Texas. He reentered the army as a reserve officer in 1935. In 1941 he gave up his commission to organize the medical service of the original Flying Tigers, going to China as chief surgeon of the American Volunteer Group, the original Flying Tigers. When the American Volunteer Group became part of the U. S. Army Air Force in June 1942, Colonel Gentry continued working under Gen. Claire L. Chennault, founder of the Flying Tigers and commanding general of the succeeding China Air Task Force and the 14th Air Force.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended September 15 have been received from the division of public health methods, U. S. Public Health Service, as follows:

	Week Ended Sept. 15, 1945	Week Ended Sept. 16, 1944		Week Ended Sept. 15, 1945	Week Ended Sept. 16, 1944
New England			South Carolina...	5	0
Maine.....	8	1	Georgia.....	2	5
New Hampshire...	1	6	Florida.....	11	4
Vermont.....	0	2	East South Central		
Massachusetts...	45	28	Kentucky.....	2	40
Rhode Island.....	0	0	Tennessee.....	15	11
Connecticut.....	15	12	Alabama.....	3	5
Middle Atlantic			Mississippi.....	3	3
New York.....	148	497	West South Central		
New Jersey.....	87	54	Arkansas.....	5	1
Pennsylvania.....	95	123	Louisiana.....	6	2
East North Central			Oklahoma.....	20	2
Ohio.....	31	118	Texas.....	44	10
Indiana.....	8	24	Mountain		
Illinois.....	66	44	Montana.....	10	3
Michigan.....	16	112	Idaho.....	2	1
Wisconsin.....	39	31	Wyoming.....	1	0
West North Central			Colorado.....	16	7
Minnesota.....	25	40	New Mexico.....	2	2
Iowa.....	46	13	Arizona.....	1	3
Missouri.....	24	4	Utah.....	22	2
North Dakota.....	1	5	Nevada.....	0	1
South Dakota.....	0	1	Pacific		
Nebraska.....	18	4	Washington.....	25	14
Kansas.....	8	9	Oregon.....	1	12
South Atlantic			California.....	46	25
Delaware.....	1	6	Total.....	965	1,440
Maryland.....	8	54	First 37 weeks:		
Dist. of Columbia	5	16	1945 and 1944.....	8,012	12,412
Virginia.....	19	46	Median, 1940-1944.....	5,204	
West Virginia.....	3	10			
North Carolina.....	6	28			

LATIN AMERICA

Health Activities in Latin America.—*Merchant Marine Dispensary.*—On July 2 a dispensary for merchant seamen to be known as the Merchant Marine Dispensary was opened under the auspices of the Panama Canal Health Department and the War Shipping Administration. The unit will ease the pressure on the Colon Hospital, Cristobal, C. Z., which has been caring for seamen. The services at the clinic will be in charge of a staff consisting of two health department physicians, two U. S. Public Health Service dentists, one psychiatrist and two pharmacist's mates.

Pan American League for Study and Control of Rheumatic Diseases.—The establishment of a Pan American League for the Study and Control of Rheumatic Diseases was recently announced. Representatives include Argentina, Brazil, Canada, Chile, Mexico, Paraguay, Peru, Uruguay and the United States. Officers are Drs. Ralph Pemberton, Philadelphia, president; Anibal Ruiz-Moreno, Buenos Aires, vice president; Loring T. Swaim, Boston, secretary, and Fernando Herrera Ramos, Montevideo, Uruguay, treasurer. The objectives of the league are to strengthen the cultural bonds between the countries of North and South America, to further efforts to alleviate suffering from rheumatic diseases and to institute measures of prevention, to compile and disseminate knowledge and information regarding rheumatism in the respective countries, to unify the nomenclature and classifications, to promote scientific investigation and to hold Pan American congresses on the

rheumatic diseases. The idea to create the league had its origin with Dr. Ruiz-Moreno and his colleagues in Buenos Aires. Indirectly it stemmed from the Ligue internationale contre le rhumatisme. The original prospectus of the Pan American League expressly set forth that it is in no sense meant to act as a substitute for the Ligue internationale but rather as an amplification and implementation of the older league's purposes.

Latin Americans Assist in UNRRA Program.—Eight doctors from Colombia and five from Venezuela have come to UNRRA to work on its program of medical and health assistance now carried on in the liberated areas of Europe. The doctors are at present at the UNRRA training center at the University of Maryland, where they are taking a two weeks orientation course before leaving for overseas. From Colombia are Drs. Hector Acevedo, Bogota; Gustavo Gomez-Hurtado, Bogota; Alfonso Gomez, Bogota; Jorge Jimenez, Bogota; Ganzalo Montes, Bogota; Gerardo Paz, Popayan; Carlos Quintero Hernandez, Barranquilla, and Alvaro Ujueta, Bogota. From Venezuela are Drs. Imelda Campo, Caracas; Victor Estaba Acuna, Caracas; Juan Alberto Gambus, Maiquetia; Francisco Emilio Rodriguez, Barquisimeto, and Claudio G. Vargas Mendoza, Tovar Estado Merida. The Colombians and Venezuelans are the fourth group of doctors to come to UNRRA for European service. Nine Cuban doctors left last week for overseas, eleven Mexican doctors are now at the training center and Brazil is sending a group directly to Reading, England. The doctors will be part of the 450 teams working at displaced persons assembly centers, where the millions of people who have been uprooted from their homes by Nazi aggression are given every possible aid in returning to their own countries as quickly as possible.

FOREIGN

Nuffield Foundation.—The central office of the Nuffield Foundation and Nuffield Provincial Hospitals Trust is now at 12-13 Mecklenburgh Square, London, W. C. 1, according to the *Lancet*. Mr. L. Farrer-Brown has taken up his duties as secretary of both organizations.

Cancer Research Fund.—A gift of £10,000 to the Sheffield Radium Center to create a fund for research in radiotherapy of cancer has been made by Mr. James Morrison, accountant and estate agent. The fund has been named after his brother David, in whose memory it has been founded, and it will be used to establish a research department at the center for the study of new methods of irradiation, according to the *Lancet*. Supervoltage x-ray equipment and a radium-beam unit are to be installed. The trustees of the fund, nominated by Mr. Morrison, are Dr. Charles Sydney Atkin, Dr. George W. Bloomfield, medical director of the center, and Mr. F. M. Osborn, deputy chairman of the Royal Sheffield Infirmary and Hospital.

Physicians in Parliament.—With the recent election of Sir John B. Orr as one of the members for the Scottish universities, the total number of physicians who will sit in the new parliament is fourteen. Sir John is director of the Rowett Research Institute and the Imperial Bureau of Animal Nutrition. The following were members of the last parliament: Drs. Leslie Haden Guest, H. B. W. Morgan, Sir John Henry Morris-Jones, Basil H. H. Neven-Spence, Sir Ernest G. Graham-Little and Edith C. Summerskill. Dr. Somerville Hastings returns after an interlude of local government. Others are Drs. Louis Comyns, Santo W. Jeger, Samuel Segal, Malcolm Stoddart-Scott, Barnet Stross and Stephen J. L. Taylor.

Rockefeller Foundation Offers Fellowships in Public Health.—The Rockefeller Foundation is offering a small number of fellowships to medical men and women of British birth who wish to take up public health as a career. The fellowships will usually be awarded for two years, and their annual value will be between £450 and £800. Traveling expenses will be paid during residence abroad. Candidates will be expected to have had some general clinical experience since registration, and service in the forces will be taken into account. Normally a fellow will be asked to spend not less than a year studying preventive medicine at the London School of Hygiene, when he will be given an opportunity to take the qualifying course for the DPH. He will also be expected to take part in teaching, to undertake a study or investigation approved by the committee of award and to work at institutions abroad during at least part of his tenure of the fellowship. No forms of application will be issued, but candidates should write informally to the dean of the London School of Hygiene, Keppel Street, London, W. C. 1.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 1, 1945.

The Socialist Government in Conflict with the British Medical Association

In the House of Commons a member of the government, Mr. Greenwood, made an attack on the minister of health of the late government, Mr. Willink, and charged him with opening discussions on the plan for a national health service with the British Medical Association behind the back of every one else. Mr. Willink pointed out that Mr. Tom Johnson, a member of the Labor party, had been associated with him in these discussions. Mr. Greenwood said that the present government would not start where these negotiations had finished. It must go back to the white paper, and its task would be more difficult because of the unnecessary concessions which Mr. Willink had made. In the House of Lords another member of the government, Lord Addison (formerly a professor of anatomy), said that there would be departures from decisions which Mr. Willink seemed to have reached *in camera* with various parties. In a later debate Mr. Willink pointed out that the discussions were not only, or even primarily, with the British Medical Association: they were with the local authorities, the voluntary hospitals and with a body representative of the whole medical profession—the Royal Colleges, the health officers and the general practitioners. The British Medical Association representatives made about half of one of those three bodies. There were of course other discussions with pharmacists, dentists and other bodies. The local authorities disliked the proposal to transfer their hospitals to the joint boards. Both the voluntary hospitals and the medical profession claimed a fuller share in the planning of the future hospital and other services than was accorded to them in the white paper. The best opinion, both lay and medical, was unanimous that the scheme gave no adequate place to the influence which the universities with medical schools should be able to bring to bear on the planning and development of the hospital and health services. The voluntary hospitals and the doctors were apprehensive as to local authority control of their work. The general practitioners were among many who objected strongly to the powers proposed to be entrusted to a central medical board. By the end of May the negotiations had reached a stage where, without loss of a single service contemplated in the white paper, a structure had emerged likely to command such general agreement as was possible.

In a letter to the *Times*, Mr. Souttar, president of the British Medical Association, who has been concerned in the negotiations from the start, says that to accuse Mr. Willink of having made unjustifiable concessions to the medical profession is a complete misrepresentation. But for the election the discussions would have been published long ago. Mr. Souttar thinks that the negotiators convinced both Mr. Willink and his expert advisers that the proposals originally drafted were unworkable and not in the public interest. Speaking for the whole medical profession, he says that their one ambition is that the best possible service should be available to every member of the community. Whether any of the things agreed on will be accepted by the socialist government cannot yet be said, but it is recognized in the profession that the change of government is most detrimental to the hopes entertained of a satisfactory agreement.

Slight Fall in the Birth Rate

The wartime upward movement of the birth rate, which has been recorded from time to time in *THE JOURNAL*, was arrested in the first quarter of this year and showed a slight fall compared with the corresponding quarter of last year—a rate of

17 per thousand of population compared with 17.4. The rate was still well above the average of the five preceding first quarters, which was 15.2. The provisional infant mortality was 59 per thousand live births, 11 below the average of the ten preceding first quarters. The death rate was 15.1 per thousand, compared with 13.8 for the same quarter a year ago and an average of 16.0 for the corresponding quarters in the previous five years. Thus the improved vital statistics of the war period, reported previously in *THE JOURNAL*, have been maintained.

PARIS

(From Our Regular Correspondent)

Sept. 3, 1945.

Social Security Plan

At the last meeting of the *Assemblée consultative* the government presented for discussion a plan of social security in France. The French plan had to take into consideration the multiplicity of the existing social security organizations. There are nearly 900 social insurance funds, many of them private, and 23,000 mutual societies with 5½ million members. Fifty per cent of all these "funds" are organized on a district basis, 20 per cent are mutual, 10 per cent professional, 12 per cent Catholic and 8 per cent trade unionist. All these funds work independently of one another, their organization often overlapping. The method of contribution is complicated, as well as the payment allowances. The insured persons are often visited, for checking purpose, by three or four social workers of different funds. The general expenses of these funds amount to 10 to 12 per cent, and those of the industrial accident insurances even up to 30 per cent of the amount of the premiums. The present industrial accident insurance system, which is based on the law of 1898, is inefficient because the insurance is facultative. The family allowance funds are exclusively under the employers' direction.

The new plan proposes the regrouping of the insurance system on the general basis of compulsory mutual assistance, the type of which is indicated by the existing social insurance organizations. A single local social security fund is planned for all social risks: disease, maternity, death, industrial accidents, industrial sickness and family allowance. There will be only one contribution covering all social risks.

The administration of the new organization will present the following features:

1. The single local fund will be operated (based on the mutuality law) by a council composed of two thirds representatives of the insured persons (appointed by the trade unions) and of one third representatives of the employers and the staff of former funds and by two physicians designated by the council on proposal of the medical organization.
2. The district security council will be created to coordinate the work of the local funds and to look after the sickness claims. They will direct the medical control and the sanitary and social activity of all the funds assigned to their district. Only the district fund will be allowed to organize a social service. The district fund will be operated by the council, which will be constituted in the same way as the local funds.
3. A national social security fund will be organized which will direct the work of the national territory, as well as a superior council at the Ministry of Labor.
4. Taking into consideration the urgent repopulation problem of France, a superior committee for family allowances will be created.

THE ADVANTAGES OF THE NEW SYSTEM

The insured person will find in the vicinity of his home the service to which he has to apply. The task of the employers and of the administrative services will be considerably simplified by the single contribution paid to the local fund. In consequence of this reorganization a reduction in the number of the

funds to 200 is foreseen. Owing to the simplification of the organizations spoken of, 700 million francs will be saved yearly out of a total contribution estimated at 75 billions for 1945 and more than 100 billions for 1946. This coordination will allow organization of a preventive system of industrial accidents and sickness, which is insufficiently developed in France. All this will also contribute to the campaign against social diseases. At the same time the coordination of medical organization, fee rates, drug and hospital costs and medical checkup will be facilitated.

For the time being, the social security plan is limited to the reorganization of the existing system to make it the starting point of a larger plan tending to extend social security to all classes of the population, first of all to the workers and the middle classes. The plan submitted to the Assemblée consultative already involves all salaried persons in social insurance, independently of their age and even if they are pensioners or if they work for one or several employers. The Minister of Labor reported that another elaborate plan was ready for the complete reorganization of old age insurance, and for the institution of a special method of indemnification and care of chronic diseases such as tuberculosis.

Buenos Aires

(From Our Regular Correspondent)

Aug. 2, 1945.

Alloxan and Tolerance to Dextrose in Rats

Drs. V. G. Foglia, O. Orias and J. Sara recently read a paper before the Argentine Society of Biology. They had performed experiments on rats either normal or pancreatectomized, placed in different lots of six rats each. Pancreatectomized rats had only 5 per cent of the pancreas. Pancreatectomy was performed one or two months before the experiment. The animals were kept fasting for fifteen hours before the experiment. Dextrose was administered by means of a gastric sound in a dose of 3 Gm. for each kilogram of body weight. Alloxan was intraperitoneally injected in a dose of 150 mg. for each kilogram of body weight. Dextrose produced transient hyperglycemia, which was more apparent in pancreatectomized rats than in normal rats. Alloxan produced moderate hyperglycemia in both normal and pancreatectomized rats. Hyperglycemia lasted for three to five hours and was followed by acute hypoglycemia. Dextrose and alloxan when given together produced subacute hyperglycemia of long duration in both normal and pancreatectomized rats, with a higher peak and longer duration in those pancreatectomized. Hypoglycemia did not follow. The animals in the two lots which had had an intraperitoneal injection of alloxan had a second injection one month after administration of the first injection. The second injection produced, very late, a transient mild hyperglycemia which was milder in the pancreatectomized rats. Hypoglycemia did not result. The administration of dextrose to pancreatectomized rats which had subdiabetogenic doses of alloxan after pancreatectomy produced hyperglycemia which was more acute and of longer duration than that which occurred in pancreatectomized rats which did not have alloxan after pancreatectomy.

Reunion of Medical Society

The Asociación Médica Argentina held its annual meeting during the third week of November 1944 in Santa Fe. The attendance was large. Delegates from Uruguay were present. There were the surgical sessions and three scientific sessions. The following topics were discussed: the diagnostic problem of meningitis with clear cerebrospinal fluid, by Dr. Juan Carlos Plá of Montevideo; rational nonbleeding therapy of the inextinguishable nontuberculous lung, by Drs. Mariano R. Castex and Eduardo Luis Capdehourat; experimental diabetes: its contribution to the progress of medicine, by Dr. Bernardo A. Houssay; the importance of bronchoscopy in tuberculosis, by Dr. Justo

Lopez Bonilla Jr.; mechanism of action of the digitalis bodies, by Dr. E. Noisset de Espanes; the x-ray appearance of the small intestine in nutritional deficiency, by Dr. Calixto J. Núñez; asthma and brucellosis, by Dr. Tomás de Villafane Lastra; the precordial electrocardiogram in bundle branch block, by Dr. Severo R. Amuchastegi; the value of gastroscopy in medicine, by Drs. Eugenio S. Weiler and Juan Nasio; film of preparations of experimental peptic ulcer, by Dr. Juan Nasio; thyroid syndromes, by Dr. Benigno Varela Fuentes of Montevideo; the surgical therapy of gastroduodenal ulcer, by Dr. Delfor del Valle; peptic ulcer after gastrectomy, by Dr. Pedro Invancich, and gangrenous abscess cured by nebulized therapy, by Drs. Nicolás Romano and Rodolfo A. Eyherabide.

Brief Items

Dr. Alois Bachmann, professor of microbiology of the Faculty of Medicine of the University of Buenos Aires, recently retired on account of having reached the limit of age for teaching. Dr. Ruperto Quiroga was appointed to the chair.

Dr. Manuel A. Viera of Buenos Aires was recently appointed general director of public health in the position rendered vacant through the resignation of Dr. Eugenio Galli.

A medicosurgical week was observed in the Britannic Hospital of Buenos Aires in October 1944 to celebrate the centenary of the founding of the hospital.

The representative of the Britannic Council of London in Latin America recently delivered a new equipment for anesthesia to Dr. Alberto Gutiérrez. It is a donation of Dr. R. R. Mackintosh, professor of anesthesiology of the University of Oxford, to the Faculty of Medicine of Buenos Aires.

An institute of aeronautical medicine was recently opened in the National School of Aeronautics in Buenos Aires. It offers a postgraduate course for physicians covering seven consecutive months.

Deaths

Dr. Pío del Río Hortega, Spanish histologist of the nervous system and disciple of Ramon y Cajal, died in Buenos Aires on June 1, where he had lived for several years to preserve his democratic ideals. He founded a laboratory and a school in which he worked and taught constantly. Dr. del Río Hortega discovered the microglia and its physiologic and pathologic meaning in 1919; later on he discovered the aligodengroglia and the neuroglia. His work on the neuroglia of the nerves and its ends, on tumors of the nervous system, on the structure of the pineal body and on many other histologic aspects of the nervous system are well known.

Dr. Kallas, professor of physiology of the Faculty of Medicine of the University of Concepción, Chile, died recently.

Marriages

MILTON THOMAS EDGERTON JR., Atlanta, Ga., to Miss Patricia Jane Jones of Forrest Hills, L. I., N. Y., June 30.

ALEXANDER WASHINGTON MARSHALL, Charleston, S. C., to Miss Sylvia Willis Russell of Haddam, Conn., July 25.

GUY ZIMMERMAN JR., Mount Sterling, Ky., to Miss Margaret Wells of Nashville in Miami, Fla., July 25.

JAMES MCGREW LAMME JR., Walsenburg, Colo., to Miss Patricia Maria Lord of Calais, Maine, June 20.

CATHERINE BIRD HOOVER, Richmond, Va., to Lieut. Fordyce Cox Stone of Binghamton, N. Y., August 6.

TREADWELL LEWIS IRELAND, New York, to Mlle. Colette Marie Charlotte Torchet in Paris, July 30.

JOHN HAL JAMESON, Easley, S. C., to Miss Charlotte Christine Crawford of Savannah, Ga., August 4.

MARION BATES LEVLETT, McGehee, Ark., to Miss Betty Jane Perryman of Fort Smith, July 25.

HENRY THOMAS GRAY, Forrest City, Ark., to Miss Johanna Janke of Ponca City, Okla., in July.

Deaths

John Aloysius Quin, Rahway, N. J.; Temple University School of Medicine, Philadelphia, 1934; born in Carteret, N. J., Nov. 6, 1906; member of the American Medical Association and the Academy of Medicine of Northern New Jersey; an honorary member of the New Jersey State Firemen's Association; interned at St. Joseph's Hospital in Yonkers, N. Y.; served a residency at Newcomb Hospital in Vineland; company surgeon for the Pennsylvania Railroad; served as member of the board of water commissioners in Rahway and as examiner and surgeon for the Public Service Company in New Jersey; medical consultant to the Union County Mental Hygiene Society; a member of the medical advisory committee of the local Red Cross nursing service; member of the staffs of the Elizabeth General and St. Elizabeth hospitals in Elizabeth; president of the staff of the Rahway Memorial Hospital, where he died June 30, aged 38, of carcinoma of the stomach.

William Waddle Richardson ♂ Mercer, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; born in Athens, Ohio, Oct. 8, 1877; specialist certified by the American Board of Psychiatry and Neurology, Inc.; fellow of the American College of Physicians; member of the American Psychiatric Association, Association for Research in Nervous and Mental Disease and the Central Neuropsychiatric Association; past president of the Mercer County Medical Society; served in France during World War I; director of the public library and the First National Bank; president of the local Rotary Club; consulting neuropsychiatrist to the Buhl Hospital in Sharon; part owner and medical director of the Mercer Sanitarium, where he died June 10, aged 67, of cerebral hemorrhage.

Edgar Lee Sanderson, Shreveport, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1908; member of the American Medical Association; fellow of the American College of Surgeons; chairman of the advisory board for the draft in western Louisiana during World War I; past president of the Shreveport Medical Society and the Louisiana State Hospital Association; served as vice president of the Louisiana State Medical Society; served as medical superintendent of the Shreveport Charity Hospital; member of the staffs of the North Louisiana and T. E. Schumpert Memorial sanitariums; died in the Highland Sanitarium June 7, aged 66, of melanosis.

Michael Valentine Ball ♂ Warren, Pa.; Jefferson Medical College of Philadelphia, 1889; at one time professor of clinical pathology at the New York Medical College and Hospital for Women, Homeopathic, New York; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Ophthalmology; past president of the Warren County Medical Society and the board of health of Warren; at one time school physician; on the courtesy staff of the Warren General Hospital; on the consulting staff of the Warren State Hospital; died May 26, aged 77, of coronary occlusion.

Joe Getty Reed, Larned, Kan.; University of Kansas School of Medicine, Kansas City, 1941; member of the American Medical Association; interned at Robert Pecker Hospital in Sayre, Pa.; began active duty as a first lieutenant in the medical corps, Army of the United States, on Oct. 26, 1942; served as flight surgeon with the air force at Fort George Wright, Wash., and in New Guinea and the Dutch East Indies, returning to this country because of ill health; relieved from active duty on Feb. 25, 1945, with the rank of captain; died in Los Angeles April 18, aged 31.

Hardie Lynch, Santa Monica, Calif.; Medico-Chirurgical College of Philadelphia, 1902; since 1920 affiliated with the Veterans Administration; for many years chief surgeon at the Veterans Administration Facility in Salt Lake City; formerly bacteriologist and assistant health commissioner for the board of health of Salt Lake City; served during World War I; at one time worked in the Panama Canal Zone as bacteriologist and pathologist for General Gorgas when the latter was in charge of health and sanitation there; died May 26, aged 68.

Charles Matthew Adams, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; member of the American Medical Association; on the staffs of the Crawford W. Long Memorial Hospital and St. Joseph Infirmary; died July 3, aged 73, of circulatory failure.

John Ambrose Miller Aspy ♂ Indianapolis; Indiana University School of Medicine, Indianapolis, 1917; associate in orthopedic surgery at his alma mater; examiner for the Selective Service Board; served overseas in World War I; on the staffs of the City Hospital, St. Vincent's Hospital and the Methodist Hospital, where he died June 12, aged 52, after a thyroidectomy.

Edward Francis Bacon ♂ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1904; served in this country and abroad during World War I; for many years associated with the city and state boards of health; died in the Hotel Dieu June 5, aged 70.

Willis L. Barris, Collingswood, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1894; died June 22, aged 76, of carcinoma of the prostate.

Robert C. Bills, Lockhart, Texas; Gate City Medical College, Texarkana, Ark., 1908; died April 25, aged 80, of cerebral hemorrhage.

Flavius Hugh Brown, Summersville, W. Va.; College of Physicians and Surgeons, Baltimore, 1911; member of the American Medical Association; past president of the Central West Virginia Medical Society; died June 8, aged 66, of cerebral hemorrhage.

Clyde Baker Callen ♂ Fayetteville, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; died in the City Hospital June 8, aged 61, of metastatic cancer and arthritis.

Fredrick George Grover Carl, Buffalo; University of Buffalo School of Medicine, 1923; member of the American Medical Association; on the courtesy staff of the Millard Fillmore Hospital; died May 7, aged 53, of carcinoma of the rectum.

Maurice David Chernoff ♂ Chicago; Chicago Medical School, 1927; on the staffs of the Mount Sinai Hospital and the Garfield Park Hospital, where he died July 13, aged 43, of cerebral hemorrhage.

George Colville Croston, Sapulpa, Okla.; Northwestern University Medical School, Chicago, 1905; member of the American Medical Association; served as president of the Creek County Medical Society; physician for the draft board during World Wars I and II; on the staff of the Sapulpa City Hospital; died in a hospital at Vinita May 30, aged 67, of heart disease.

David Telle Dickey, Seattle; St. Louis College of Physicians and Surgeons, 1895; died May 21, aged 74, of cerebral hemorrhage.

Shirley Edward Dunlap, Wiggins, Miss.; University of Nashville (Tenn.) Medical Department, 1906; member of the American Medical Association; past president of the Coast Counties Medical Society; served as mayor of Wiggins; local surgeon for the Illinois Central Railroad; secretary of the Appeal Board number 6, Selective Service System, Hattiesburg; president of the Bank of Wiggins; past president of the Wiggins Rotary Club; died in the Touro Infirmary, New Orleans, June 10, aged 65, of coronary thrombosis.

Walter John Eilerts ♂ Wichita, Kan.; National University of Arts and Sciences Medical Department, St. Louis, 1915; served on the state board of health; on the staffs of the Wichita Hospital, St. Joseph Hospital and the Wesley Hospital, where he died July 9, aged 64, of coronary occlusion.

Erastus Talbot Farrens, Clarinda, Iowa; Missouri Medical College, St. Louis, 1881; died June 2, aged 89, of senility.

Clarence Gardinier, Schenectady, N. Y.; Albany Medical College, 1914; member of the American Medical Association; formerly medical examiner and surgical supervisor for the General Electric Company; served during World War I; died in the Ellis Hospital May 23, aged 55, of intestinal hemorrhage and hypertension.

Thomas Leslie Giles, Toshes, Va.; Hospital College of Medicine, Louisville, Ky., 1905; died in the Memorial Hospital, Lynchburg, May 5, aged 66, of myocarditis.

Lorin Arthur Greene ♂ Lieutenant Colonel, U. S. Army, retired, Gainesville, Fla.; Memphis (Tenn.) Hospital Medical College, 1902; served during World War I; entered the medical corps of the U. S. Army as a major in July 1920; retired June 30, 1939; died January 8, aged 65, of coronary thrombosis.

Edward Theodorick Haskins, Newbern, Tenn.; Vanderbilt University School of Medicine, Nashville, 1895; member of the American Medical Association; died June 16, aged 71, of myocardial failure.

John Madison Hench @ Stockton, Calif.; College of Physicians and Surgeons of Chicago. School of Medicine of the University of Illinois, 1906; served during World War I; died May 7, aged 71, of coronary occlusion and diabetes mellitus.

Thomas William White Little, Cedar Rapids, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1900; died in the Mercy Hospital May 3, aged 80, of cerebral hemorrhage.

Victor Donaldson Long, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1928; died in the Friends Hospital, Philadelphia, May 19, aged 41, of toxic psychosis.

Francis Gerald McCarty, Niagara Falls, N. Y.; Loyola University School of Medicine, Chicago, 1930; served as a first lieutenant in the medical corps, Army of the United States, from March 1941 to November 1941, when he was discharged because of physical disability; member of the staffs of the Mount St. Mary's Hospital and the Niagara Falls Memorial Hospital; on the courtesy staff of the Sisters of Charity Hospital in Buffalo; died May 8, aged 42, of coronary sclerosis.

Nettie Andre Belau Moss, Detroit; Ohio Medical University, Columbus, 1896; died May 25, aged 71, of cerebral hemorrhage.

James Fowler Pressly @ San Francisco; Medical Department of the University of California, 1902; died May 25, aged 70, of myocardial insufficiency.

Samuel Watt Riggs, Pleasant Hill, Ala.; College of Physicians and Surgeons, Baltimore, 1893; member of the American Medical Association; died in the Selma Baptist Hospital, Selma, May 31, aged 74, of coronary thrombosis.

Harry Arthur Seigall, Hartford, Conn.; University of Vermont College of Medicine, Burlington, 1914; awarded the Purple Heart and the Silver Star for service during World War I; interned at St. Francis Hospital, where he remained a member of the staff; formerly chief of staff, Mount Sinai Hospital; died in the Mayo Clinic, Rochester, Minn., June 29, aged 54, of hereditary hemorrhagic telangiectasis.

Daniel Boteler Sprecher, Hollidaysburg, Pa.; College of Physicians and Surgeons, Baltimore, 1881; member of the American Medical Association and the Medical and Chirurgical Faculty of Maryland; for many years surgeon for the Baltimore and Ohio Railroad Company; died in Altoona, June 17, aged 90, of uremia.

Joseph Clinton Starbuck @ Media, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; at one time represented Delaware County on the state board of health; served as staff physician for the Glen Mills (Pa.) Boys School and the Philadelphia Orphanage; died June 21, aged 79, of chronic myocarditis.

Grady Erastus Stone, King, N. C.; North Carolina Medical College, Charlotte, 1915; member of the American Medical Association; died June 21, aged 53, of coronary occlusion.

Martin Joseph Sweeney, Redlands, Calif.; Bellevue Hospital Medical College, New York, 1893; served on the staff of the Kane Summit Hospital and the board of education in Kane, Pa.; died June 8, aged 77, of coronary occlusion.

J. G. Taylor, Farmerville, La.; Louisville (Ky.) Medical College, 1894; coroner of Union Parish; died May 16, aged 77.

Willis Carver Templer @ Corning, N. Y.; University of Buffalo School of Medicine, 1920; served as president of the New York State Society of Industrial Medicine; medical director of the Corning Glass Works; surgeon at the Corning Hospital; consultant in industrial hygiene at the Strong Memorial Hospital in Rochester; died in the Clifton Springs Sanitarium and Clinic, Clifton Springs, May 12, aged 48, of cirrhosis of the liver and rheumatic heart disease.

Clarence Edgar Thompson @ Saco, Maine; Medical School of Maine, Portland, 1901; served on the staffs of the Eastern Maine General Hospital in Bangor and the Webber Hospital in Biddeford; died June 2, aged 69, of coronary disease.

Charles Whelan @ Boston; Tufts College Medical School, Boston, 1905; specialist certified by the American Board of Radiology, Inc.; member of the New England Roentgen Ray Society, Radiological Society of North America, Inc., and the American College of Radiology; served during World War I; for several years chief radiologist at the Quincy City Hospital; Quincy; consultant in roentgenology at the Carney Hospital and New England Hospital for Women and Children; died May 29, aged 68, of leukemia.

Bohumil Joseph Wiesner, St. Louis; American Medical College, St. Louis, 1902; formerly professor of anatomy at his alma mater; died May 31, aged 72.

Harry Dunlap Wiley @ Glencoe, Ill.; Rush Medical College, Chicago, 1899;

served as a major in the medical corps of the U. S. Army during World War I; on the staff of the Highland Park Hospital, Highland Park, where he died August 20, aged 74, of peritonitis from acute appendicitis and pernicious anemia.



LIEUT. STAFFORD M. WHEELER
(MC.), U.S.N.R., 1910-1945

KILLED IN ACTION

Stafford Manchester Wheeler, Boston; Harvard Medical School, Boston, 1937; interned in contagious diseases at Sydenham Hospital and at the Harriet Lane Home, Johns Hopkins Hospital, both in Baltimore; later became epidemiologist-in-training with the division of communicable diseases, New York State Department of Health, in order to acquire further training and experience in epidemiology and contagious diseases; served as assistant and instructor in preventive medicine and epidemiology at his alma mater and the Harvard School of Public Health; research assistant at the House of the Good Samaritan; fellow of the epidemiological section of the American Public Health Association and a member of the American Epidemiological Society, as well as of several other medical and scientific associations; early in 1941 joined the Harvard group which went to Halifax, Canada, to assist the Canadian health authorities in an investigation of an extensive epidemic of diphtheria, scarlet fever and meningococcal meningitis; in the spring of 1942 accepted an appointment as associate professor of epi-

demiology at the Columbia University College of Physicians and Surgeons and the DeLamar School of Public Health; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve in June 1942; assigned as an instructor in epidemiology at the Naval Medical School, National Naval Medical Center, Bethesda, Md., where he investigated contagious diseases in various naval installations and served a tour of submarine duty in the North Atlantic in connection with his work; stationed at Bethesda until December 1944, when he was appointed to the American Typhus Commission and assigned overseas, where he worked with a Partisan army unit in Bosnia and Herzegovina; entered Sarajevo with the Partisan army on the day it was liberated from the Germans; awarded posthumously the United States of America Typhus Commission Medal on June 11, 1945 by the Vice Admiral of the U. S. Navy; promoted to lieutenant; killed near Sarajevo, Yugoslavia, April 13, aged 34, when a land mine exploded beneath his jeep.

Correspondence

MARIHUANA PROBLEMS

To the Editor:—An editorial (THE JOURNAL, April 28, p. 1129) and two communications to the Editor (June 2, p. 383, and July 21, p. 899), in discussing the book "Marihuana Problems" by the New York City Mayor's Committee on Marihuana, have referred to the article "The Marihuana Addict in the Army" by the undersigned and Capt. Henry J. Myers, which appeared in the December 1944 issue of *War Medicine*. In the editorial our article was said to be "a devastating refutation of the information contained in the La Guardia report." In their letters both Dr. Walton and Dr. Bowman objected to this characterization of the article and endorsed the findings of the Committee report.

Although I found the book "Marihuana Problems" to contain many valuable observations, I am critical of some conclusions and omissions. For example, on page 218 of the book it is stated that "those who have been smoking marihuana for a period of years showed no mental or physical deterioration which may be attributed to the drug." Even if this conclusion applies to the marihuana users included among the Committee's subjects—and this question will be discussed later—the criticism may still be raised that the Committee did not study confirmed marihuana addicts, for example of the type and degree analyzed in our article. The Committee's report would be analogous to a study of alcohol which omitted all reference to the chronic alcoholic addict.

In my opinion, some of the most significant observations in the entire investigation are contained on page 132 of the book, in the final paragraph of the chapter on "Emotional Reactions and General Personality Structure." I quote: "When the productions (in the personality tests) of the undrugged marihuana user are studied, certain personality traits which serve to differentiate him from the nonuser and from the 'average' individual can be discerned. As a group the marihuana users studied here were either inhibited emotionally or turned in on themselves, making little response to stimuli in the world about them. People with this type of personality generally have difficulty adjusting to others and are not at ease in social situations. This withdrawal from social contacts apparently finds little compensatory or sublimating activity elsewhere. These subjects did not have a desire or urge to occupy themselves creatively in a manner which might prove socially useful. They showed a tendency to drift along in passive fashion and gave a good portion of their attention to relatively unimportant matters. These men were poorly adjusted, lonely and insecure. As indicated by their history they seldom achieved good heterosexual adjustment." It is a serious omission that, in the summary chapter of the book, no mention is made of this aspect of the psychologic investigation.

Moreover, on page 218 appears the conclusion "Marihuana does not change the basic personality structure of the individual. It lessens inhibition and this brings out what is latent in his thoughts and emotions but it does not evoke responses which would otherwise be totally alien to him." It seems likely that the Committee, in its apparently dispassionate effort to counteract widely held but perhaps alarmist views of the extreme dangers of marihuana—that it causes otherwise normal individuals to commit violent crimes, to become oversexed and so on—has leaned too far backward and has minimized the long-term noxious effects of a substance which, according to the Committee's own observation, enhances, fosters and reinforces all the personality traits and tendencies mentioned on page 132 of the book.

Finally, it seems a pity that in such an elaborate study, which included psychologic, psychiatric and sociologic investigation, there is no attempt to determine the etiologic factors,

either personal or social, leading to the use of marihuana. There is the statement on page 214, in the summary, "The marihuana users with whom contact was made in this study were persons without steady employment. The majority fall in the age group of 20 to 30 years. Idle and lacking initiative, they suffer boredom and seek distraction. Smoking is indulged in for the sake of conviviality and sociability and because it affords a temporary feeling of adequacy in meeting disturbing situations."

There is no apparent interest in the reasons for its widespread use in Harlem, why the users are "without steady employment, idle, lacking initiative" and so on.

In our study of 35 marihuana addicts in the Army, it was glaringly obvious that "their backgrounds were heavily loaded with adverse familial, social and economic factors," that "the personality pictures (of the marihuana addicts) show a typical pattern of response to repeated (actual) situations of frustration and deprivation," that "a completely adequate estimate of the effects of marihuana can be obtained only from viewing its use as part of an entire life pattern" and that "the problem is not the drug but the user of the drug" and, I might add, the social, economic, cultural milieu in which the drug user's development is fostered.

The obvious implication of the Committee's report, despite the fact that it is not explicitly stated, is that marihuana is essentially a harmless drug, used by inadequate persons as a means of obtaining a little fun out of life and is nothing to become alarmed about.

Such a conclusion might seem justified from the observations recorded. However, in spite of the appearance of scientific care and objectivity in the report, the final picture is of necessity a distortion because, in spite of the planning and the diverse approach, attention was focused on peripheral aspects but not primarily on the core of the problem, the user of the drug and the environmental forces affecting his development.

ELI MARCOVITZ, CAPTAIN, M. C., A. U. S.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Sept. 22, page 300.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, Nov. 12-14. Part III, New York City, Oct. 15-17; Boston, Oct. 16-17. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Various centers, Jan. 18. Final date for filing application is Oct. 20. *Oral*. Various centers, Oct. 1946. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 24.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, May 27. Final date for filing application is Feb. 1. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written*. Part I. Various centers, Feb. 2. Final date for filing application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Jan. 18-22 and Los Angeles, Jan. 28-Feb. 1. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 3-6 (canceled). Spring 1946. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Oct. 19. *Oral*. Atlantic City, Dec. 7-8. Sec., Dr. C. A. Alarich, 115½ First Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Part I. Spring 1946. Final date for filing application is Dec. 1. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*. Various centers, Dec. 9. *Oral*. Chicago, February 1946. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

APPROVED RESIDENCIES AND FELLOWSHIPS FOR VETERAN AND CIVILIAN PHYSICIANS

Hospitals, 736; Assistant Residencies, Residencies and Fellowships, 7,666

The following educational services investigated and approved by the Council on Medical Education and Hospitals are considered in position to furnish acceptable residency training in accordance with standards adopted by the American Medical Association. In practically all fields these training programs have been reviewed in collaboration with the respective specialty boards. Included in the present list is the expanded number of residencies now available in those approved hospitals which have completed their plans to provide further opportunities for returning medical officers. Many additional residencies recently organized or in process of development may soon be added to the approved list. All arrangements for appointments should be made directly with the hospital concerned in the usual manner.

Discharged medical officers appointed by hospitals need not be counted in the regular residency quota allotted to individual hospitals by the Procurement and Assignment Service.

The star (*) indicates hospitals that are also approved for the training of interns. All hospitals on the approved intern list are likewise accredited for mixed residencies which represent general house staff assignments following the internship.

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1. ANESTHESIOLOGY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Total Anesthetics	Inhalation Anesthetics	Autopsy Percentage	Asst. Res. and Residencies	Beginning of Service (10/5)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital**	Los Angeles	W. W. Hutchinson	45,434	7,471	1,692	38	Varies	9-12	\$137.20	
White Memorial Hospital*	Los Angeles	A. J. Martinson	10,155	5,712	1,567	43	7/1	9-12	116.00	
Stanford University Hospitals**	San Francisco	W. B. Neff	9,710	4,537	.....	36	7/1	9-18	50.00	
University of California Hospital**	San Francisco	H. R. Hathaway	7,761	.....	.....	79	Varies	9	50.00	
Hartford Hospital**	Hartford, Conn.	C. B. Hickcox	21,513	18,185	9,151	34	1/1, 7/1	9-18	50.00	
University Hospital*	Augusta, Ga.	P. P. Volpittio	10,453	4,536	3,432	.....	.....	9	.....
Michael Reese Hospital**	Chicago	J. Hichman	14,944	5,089	4,251	56	5	.....	9-36	50.00
Research and Educational Hospitals**	Chicago	W. H. Cassels	4,757	2,421	1,626	93	4	7/1	9-36	55.00
St. Luke's Hospital*	Chicago	W. A. Conroy	14,158	8,938	4,672	67	5	7/1	9-36	25.00
University of Chicago Clinics**	Chicago	H. Livingstone Adams	11,328	7,798	5,947	73	1	.....	9-24	25.00
Wesley Memorial Hospital**	Chicago	M. Karp	11,997	7,034	4,527	56	3	.....	9-24	.....
Evanston Hospital*	Evanston, Ill.	J. H. Bennett	7,823	4,329	2,117	82	1	Varies	9	50.00
Indianapolis City Hospital*	Indianapolis	L. B. Mueller	9,572	5,937	1,988	28	4/1	9-36	100.00	
Methodist Hospital*	Indianapolis	J. M. Whitehead	20,085	17,721	11,299	29	4/1	9-18	100.00	
University of Kansas Hospitals**	Iowa City, Ia.	S. C. Cullen	16,977	8,377	4,928	42	9	7/1	9	25.00
Louisville General Hospital*	Louisville, Ky.	D. Dollar	9,971	2,537	608	24	2	.....	9	54.00
Charity Hospital of Louisiana*	New Orleans	J. Adriani	37,712	13,452	8,439	36	3	7/1	9-36	60.00
Laney Clinic	Boston	U. H. Eversole	.....	10,000 ^b	.....	.....	9	.....	9	.....
Massachusetts General Hospital**	Boston	H. K. Beecher and Julia Arrwood	15,617	10,363 ^b	5,810 ^b	60	7	.....	9	.....
Massachusetts Memorial Hospitals**	Boston	E. B. Ferguson	8,248	5,230	3,197	72	2	7/1	9	.....
New England Hospital for Women and Children**	Boston	E. Bartlett	4,033	.....	.....	49	3	.....	9	.....
Providence Hospital*	Detroit	N. M. Bittick	13,129	7,387	4,386	67	2	7/1	9-24	140.00 ^c
University Hospitals*	Minneapolis	R. T. Knight	8,721	4,158	2,017	60	3	.....	9-36	.....
Mayo Foundation	Rochester, Minn.	J. S. Lundy	.....	.....	.....	.....	10	.....	9	.....
West Jersey Homeopathic Hospital*	Camden, N. J.	K. S. Russell	5,266	2,686	1,421	20	-2	.....	9	.....
Jersey City Hospital*	Jersey City, N. J.	W. Gleason	20,191	6,400	2,250	17	6	.....	9-24	25.00
Albany Hospital**	Albany, N. Y.	B. Etsten	12,505	6,379	4,630	54	4	7/1	9-12	25.00
Jewish Hospital**	Brooklyn	I. M. Pallin	13,446	2,520	2,000	50	4	1/1, 7/1	9-36	75.00
Buffalo General Hospital**	Buffalo	C. J. Durehardwe	10,576	6,822	3,590	42	2	.....	9	.....
Bellevue Hospital, Div. III-N. Y. Univ.**	New York City	E. A. Rovenstine	57,594	18,139	9,345	28	11	Varies	9-36	50.00
Flower and Fifth Avenue Hospitals*	New York City	D. E. Brace	9,428	6,023 ^b	4,374 ^b	29	2	.....	9-12	100.00
French Hospital**	New York City	S. H. Lesinger	5,806	2,589	1,652	13	1	.....	9	.....
Hospital for Joint Diseases**	New York City	B. Rapoport	5,311	3,616	2,175	27	1	Varies	9-36	40.00
Metropolitan Hospital**	New York City	F. E. Fierro	8,838	2,435	1,009	22	3	.....	9	.....
Mount Sinai Hospital**	New York City	D. H. Eliasberg	14,524	7,012	5,334	41	4	.....	9-24	.....
New York Polyclinic Medical School and Hospital*	New York City	B. C. Sword	8,714	5,305	3,180	15	4	7/1	9	100.00
New York Post-Graduate Medical School and Hospital**	New York City	M. C. Peterson	8,423	4,663	3,326	41	9	1/1, 6/1, 9/1	9-24	50.00
Presbyterian Hospital**	New York City	V. Apar	25,985	14,927	11,162	53	5	.....	9	50.00
St. Luke's Hospital*	New York City	G. E. Burford	8,165	4,889	2,621	59	6	Varies	9-36	125.00
St. Vincent's Hospital**	New York City	G. H. Van Gilluwe	11,741	3,297	2,321	48	2	7/1	9-18	25.00
Gracelands Hospital**	Valhalla, N. Y.	H. F. Bishop and W. Grillo	4,465	1,616	450	52	1	.....	9	.....
Cincinnati General Hospital*	Cincinnati	.....	13,690	5,341	1,927	38	1	.....	9	.....
Huron Road Hospital**	East Cleveland, Ohio	R. J. Whitner	5,563	8,726	5,377	42	2	.....	9	90.00
University Hospitals**	Oklahoma City, Okla.	H. E. Doudna	5,374	2,615	1,222	40	3	.....	9-24	.....
University of Oregon Medical School Hospitals and Clinics**	Portland, Ore.	J. H. Hutton	5,770	7,745	1,551	55	3	7/1	9-18	75.00
Inghemann Hospital**	Philadelphia	H. S. Ruth	10,548	8,273	5,163	43	2	7/1	9-18	50.00
Hosp. of the University of Pennsylvania**	Philadelphia	R. D. Dripps	14,288	10,693	4,490	75	2	.....	9-24	.....
Presbyterian Hospital*	Philadelphia	F. Haugen	6,261	.....	.....	71	1	7/1	9	50.00
Temple University Hospital**	Philadelphia	P. D. Woodbridge	10,922	7,673 ^b	4,652 ^b	42	3	7/1	9-36	85.00
Rhode Island Hospital*	Providence, R. I.	M. Saklad	10,911	6,0-2	2,721	48	1	7/1	9	50.00
John Sealy Hospital*	Galveston, Texas	H. Slocum	7,274	3,312	2,437	50	3	Varies	9-36	50.00
State of Wisconsin General Hospital**	Madison, Wis.	R. A. Waters	12,682	4,775	3,299	65	6	1/1, 7/1	9-36	25.00
Columbia Hospital**	Milwaukee, Wis.	H. A. Cunningham	4,228	2,189	1,725	48	1	7/1	9-18	50.00

Hospitals, 54; Assistant Residencies and Residencies, 198

Numerical and other references will be found on page 405.

2. CARDIOLOGY

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies*	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Indiana University Medical Center**	Indianapolis	G. Bond	166	245	9	4	1	10/1	9-36	\$33.00
House of the Good Samaritan*	Boston	T. D. Jones	500 ^b	2,000 ^b	110	38	1	7/1	9-12	50.00
Massachusetts General Hospital*	Boston	P. D. White	1,030	10,328	25	1	1	7/1	9-36	175.00
Henry Ford Hospital**	Detroit	F. J. Smith	3,619	44	25	1	1	7/1	9-36	35.00
Pennsylvania Hospital*	Philadelphia	W. D. Stroud	453	44	25	1	1	7/1	9-36	50.00
St. Francis Hospital*	Pittsburgh	A. P. D'Zmura	2,313	489	25	1	1	7/1	9-36	50.00
Rhode Island Hospital*	Providence, R.I.	F. T. Fulton	2,313	489	25	1	1	7/1	9-36	50.00

Hospitals, 7; Assistant Residencies and Residencies, 10

3. COMMUNICABLE DISEASES

Name of Hospital	Location	Chief of Service	Inpatients Treated *	Deaths	Autopsies	Asst. Res. and Residencies *	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital **	Los Angeles.....	P. Hamilton	3,977	253	146	3	.....	9	.....
Children's Hospital *	San Francisco.....	E. B. Shaw	500 ^b	32 ^b	17 ^b	2	.....	9	.....
Municipal Hospitals *	Hartford, Conn.....	C. L. Thenebe	625	29	3	1	.....	9	\$130.00
Cook County Hospital *	Chicago.....	A. L. Hoyne	1,069	104	74	1	1/1, 7/1	9	25.00
Municipal Contagious Disease Hospital *	Chicago.....	A. L. Hoyne	1,632	100	57	12	.....	9	126.50
Sydenham Hospital *	Baltimore.....	M. H. Smith	1,150	59	43	3	7/1	9	40.00
Boston City Hospital *	Boston.....	E. H. Place	3,246	18	4	2	7/1	9	50.00
Massachusetts Memorial Hospitals *	Boston.....	C. Wesselhoeft	1,509	45	34	2	7/1	9	.....
Belmont Hospital *	Worcester, Mass.....	R. D. Cox	823 ^b	3	1	2	.....	9	133.00
Herman Kiefer Hospital *	Detroit.....	F. H. Top	2,294	157	77	8	7/1	9	200.00
Kansas City General Hospital *	Kansas City, Mo.....	P. F. Stookey	602	63	50	1	.....	9-24	50.00
St. Louis City Hospital *	St. Louis.....	R. W. Maxwell.....	.....	54	21	2	7/1	Varies	80.00
Essex County Hosp. for Contagious Dis. *	Belleville, N. J.....	E. L. Smith	2,495	54	21	7	1/1, 7/1	9	125.00
Kingston Avenue Hospital *	Brooklyn.....	H. L. Barnes	4,205	84	25	6	7/1	9	100.00
Queens General Hospital *	Jamaica, N. Y.....	H. A. Reisman	507	17	8	3	7/1	9-24	110.00
Willard Parker Hospital *	New York City.....	B. W. Hamilton	4,787	66	26	9	7/1	9	110.00
City Hospital *	Cleveland.....	J. A. Toomey	2,393	139	62	4	7/1	9	25.00
Philadelphia Hosp. for Contagious Dis. *	Philadelphia.....	A. C. LaBocetta.....	3,952	56	30	4	.....	9	145.00

Hospitals, 18; Assistant Residencies and Residencies, 72

4. DERMATOLOGY AND SYPHILOLOGY

The following services are approved by the Council and the American Board of Dermatology and Syphilology
(See footnotes 1, 2 and 3)

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies*	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital**	Los Angeles	I. R. Bancroft	1,111	14,887	25	9	2	Varies	9-36	\$157.20
Stanford University Hospitals**	San Francisco	O. E. Schmidt	35	16,805	..	..	2	7/1	9-18	50.00
University of California Hospital**	San Francisco	H. E. Miller	6	10,631	..	..	2	Varies	9-36	50.00
Georgetown University Hospital**	Washington, D. C.	F. Eichenlaub	35	7,963	..	..	2	7/1	9-24	75.00
Research and Educational Hospitals**	Chicago	F. E. Seneac	44	9,498	2	1	1	Every 9 mos	9-36	55.00
University of Chicago Clinics**	Chicago	S. Rothman	113	6,805	2	2	4	7/1	9-36	25.00
University Hospitals**	Iowa City, Ia.	R. Nomland	314	2,290	9	3	4	7/1	9-36	60.00
Charity Hospital of Louisiana**	New Orleans	M. T. Van Studdiford	253	42,562	8	3	10	7/1	9-36	50.00
Boston City Hospital**	Boston	J. G. Downing	103	26,039	1	..	2	7/1	9-36	105.85
Massachusetts General Hospital**	Boston	C. Guy Lane	246 ^b	16,021 ^b	..	..	3	7/1	9-18	145.58
University Hospital**	Ann Arbor, Mich.	A. C. Curtis	925	8,333	8	7	8	7/1	9-18	91.30
City of Detroit Receiving Hospital**	Detroit	L. Shaffer	89	4,770 ^b	9	2	2	7/1	9-36	..
Minneapolis General Hospital**	Minneapolis	S. E. Sweltzer	353	8,105	9	2	2	7/1	9-36	..
University Hospitals**	Minneapolis	H. Michaelson	128	6,610	2	2	2	7/1	9-36	..
Mayo Foundation*	Rochester, Minn.	P. A. O'Leary	38	7,275	..	..	10	7/1	9-36	..
Barnard Free Skin and Cancer Hospital**	St. Louis	M. F. Engman	632	15,602	24	6	1	7/1	9-12	25.00
Kings County Hc	St. Louis	E. A. Gauvain	90	3,889	2	1	1	7/1	9-36	59.00
Buffalo General	St. Louis	E. D. Osborne	292	14,216	5	1	3	7/1	9-36	25.00
Edward J. Meyer	St. Louis	F. O. Coombs	1,447	32,606	..	..	4	Varies	9-36	..
Bellevue Hospital, Div. III—N. Y. Univ.**	New York City	J. G. Hopkins	21	42,848 ^b	1	..	1	7/1	9-36	50.00
Columbia-Presbyterian Medical Center**	New York City	F. Wise	809	9,052	9	2	1	7/1	9-36	110.00
Montefiore Hosp. for Chronic Diseases**	New York City	J. J. Eller	..	..	..	..	..	7/1	9-36	..
New York City Hospital**	New York City	D. Barr and W. McDermott	..	23,879	..	..	2	7/1	9-36	..
New York Hospital**	New York City	G. M. MacKee	266	102,358	3	1	12	10/1	9-24	87.33
New York Post-Graduate Medical School and Hospital**	New York City	J. L. Calloway	197	7,880	..	..	3	7/1	9-24	60.00
Duke Hospital**	Durham, N. C.	H. L. Claassen	316	2,573	6	4	4	7/1	9-24	..
Cincinnati General Hospital**	Cincinnati	H. N. Cole	681	13,954	4	2	4	7/1	9-24	..
City Hospital**	Cleveland	H. N. Cole	291 ^b	17,657 ^b	..	..	2	7/1	9-24	..
University Hospitals**	Cleveland	H. N. Cole	..	..	..	..	..	7/1	9-24	..
University of Oregon Medical School Hospitals and Clinics**	Portland, Ore.	L. B. Kingery	34	4,746	..	..	5	7/1	9-24	..
Graduate Hosp. of the Univ. of Penna.**	Philadelphia	F. Weldman	106	9,954	2	1	2	7/1	9-24	..
Hospital of the Univ. of Pennsylvania**	Philadelphia	J. H. Stokes	253	23,425	..	..	6	7/1	9-24	..
Jefferson Medical College Hospital**	Philadelphia	F. C. Knowles	25 ^b	5,253 ^b	..	..	1	7/1	9-24	..
Skin and Cancer Hospital*	Philadelphia	A. Strickler	172	50,639	10	..	2	7/1	9-24	..
University of Virginia Hospital**	Charlottesville, Va.	D. C. Smith	256	9,167	3	3	7	7/1	9-24	..

Hospitals, 33; Assistant Residencies and Residencies, 122

5. FRACTURES

The following services are approved by the Council and the American Board of Orthopaedic Surgery

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies	Beginning of Service (1915)	Length of Ser- vice (Months)	Beginning Stipend (Month)
Denver General Hospital *	Denver	H. W. Wilcox	1,676	2,516	205	40	1	1/1, 7/1	9-26	\$30.00
Michael Reese Hospital *	Chicago	W. R. Cuhbins	2,504	2,283	34	4	1	7/1	9-26	25.00
Cook County Hospital *	Detroit	A. D. LaFerte	1,074	10,935	34	4	1	7/1	9-18	145.58
City of Detroit Receiving Hospital *	New York City	W. Darrach	450	11,092	36	4	1	7/1	9	50.00
Presbyterian Hospital *	Providence, R. I.	H. E. Harris	640	4,398	36	4	1	7/1	9	50.00
Rhode Island Hospital *										

Hospitals, 5; Assistant Residencies and Residencies, 15

6. MALIGNANT DISEASES

Albert Steiner Clinic for Cancer and Allied Diseases *	Atlanta, Ga.	R. H. Fike	531	39,490	43	43	12	10/1	9-24	\$100.00
Michael Reese Hospital *	Chicago	E. Uhlmann	1,406	826	..	..	1	..	9-26	25.00
Massachusetts General Hospital *	Boston	L. S. McKittick	533 ^b	205 ^b	..	..	1	..	9	..
New England Deaconess Hospital	Boston	G. L. Parker	815	6,546	23	19	5	Varies	9-15	177.00
Pondville Hospital	Walpole, Mass.	F. S. Hopkins	385	6,760	12	10	3	..	9-12	162.96
Westfield State Sanatorium *	Westfield, Mass.	R. V. Walker	422	332	126	37	1	7/1	9	160.00
Eloise Hospital and Infirmary *	Eloise, Mich.	..	500	7,040	9	2	2	..	9	..
Barnard Free Skin and Cancer Hospital	St. Louis	..	538 ^b	2,623 ^b	..	..	2	..	9	..
Jersey City Hospital *	Jersey City, N. J.	J. B. Falson	893	6,169	225	41	6	1/1	9	100.00
Brooklyn Cancer Institute *	Brooklyn	A. B. Friedman	..	..	..	..	..	..	..	..
State Institute for the Study of Malignant Diseases *	Buffalo	B. F. Schreiner	1,826	26,410	58	58	4	..	9-24	150.00
Meadowbrook Hospital *	Hempstead, N. Y.	A. C. Martin	370	3,039	116	35	1	7/1	9	110.00
Memorial Hospital *	New York City	C. P. Rhoads	5,130	76,807	223	95	25	..	9-26	..
New York City Cancer Institute Hospital *	New York City	J. Wolf	935	4,782	562	80	6	1/1, 7/1	9	100.00
Duke Hospital *	Durham, N. C.	..	612	5,951	3	18	3	5/1, 10/1	9-26	100.00
American Oncologic Hospital *	Philadelphia	G. M. Dorrance	567	7,251	69	44	4	7/1	9-26	100.00
Jeannes Hospital *	Philadelphia	H. Wamneck	..	..	..	..	..	..	..	..

Hospitals, 17; Assistant Residencies and Residencies, 73

7. MEDICINE

Army Air Forces Hospitals

The following hospitals of the Army Air Forces have been approved by the Council as offering acceptable residencies in Medicine for a period not to exceed one year. Residency assignments are available to medical officers for periods of six to twelve months.

Regional Hospital	Maxwell Field	Montgomery, Ala.	Regional Hospital	Darksdale Field	Shreveport, La.
Regional Hospital	Davis-Monthan Field	Tucson, Ariz.	Regional Hospital	Westover Field	Chicopee Falls, Mass.
Regional Hospital	Hammer Field	Fresno, Calif.	Regional Hospital	Keesler Field	Bloxi, Miss.
Regional Hospital	Hamilton Field	San Rafael, Calif.	Regional Hospital	Army Air Field	Lincoln, Neb.
Regional and Convalescent Hospital	Army Air Base	Santa Ana, Calif.	Regional Hospital	Mitchel Field	Hempstead, N. Y.
Regional Hospital	Buckley Field	Denver, Colo.	Regional Hospital	Patterson Field	Fairfield, O.
Regional and Convalescent Hospital	Miami District	Miami Beach, Fla.	Regional Hospital	Army Air Field	Slouss Falls, S. D.
Regional Hospital	Army Air Base	Orlando, Fla.	Regional Hospital	Army Air Field	Amarillo, Tex.
Regional Hospital	Drew Field	Tampa, Fla.	Regional Hospital	Army Air Field	Pyote, Tex.
Regional Hospital	Hunter Field	Savannah, Ga.	Regional Hospital	Aviation Cadet Center	San Antonio, Tex.
Regional Hospital	Scott Field	Bellville, Ill.	Regional Hospital	Sheppard Field	Wichita Falls, Tex.
Regional Hospital	Chanute Field	Rantoul, Ill.	Regional Hospital	Kearns ORD	Kearns, Utah
			Regional Hospital	Langley Field	Hampton, Va.
			Regional Hospital	Truax Field	Madison, Wis.

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies	Beginning of Service (1915)	Length of Ser- vice (Months)	Beginning Stipend (Month)
Jefferson and Hillman Hospitals *	Birmingham, Ala.	J. S. McLester	3,138	8,543	467	127	4	Every 9 mos	9	\$50.00
Norwood Hospital *	Birmingham, Ala.	H. S. Ward and E. D. Lineberry	972	4,745	42	12	1	..	9-24	150.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company *	Fairfield, Ala.	W. W. Compton	1,872	18,803	158	39	2	1/1	9-12	200.00
Baptist State Hospital *	Little Rock, Ark.	F. W. Harris	2,018	..	205	41	12	1/1	9-12	125.00
General Hospital of Fresno County *	Fresno, Calif.	W. E. R. Schottstaedt	1,484	4,983	284	42	2	7/1	9-12	135.00
Cedars of Lebanon Hospital *	Los Angeles	M. Nathanson	3,894	6,484	267	145	1	7/1	9	100.00
Los Angeles County Hospital *	Los Angeles	H. F. West	12,566	42,124	2,342	644	18	Varies	9-26	157.20
White Memorial Hospital *	Los Angeles	D. D. Comstock	2,437	25,236	113	48	2	7/1	9-12	116.00
Highland-Alameda County Hospital *	Oakland, Calif.	R. T. Sutherland and H. G. MacLean	2,008	..	441	82	3	7/1	9	\$9.00
Collis P. and Howard Huntington Memorial Hospital *	Pasadena, Calif.	J. R. Sanford	1,909	11,506	205	..	1	10/1	9-12	150.00
San Diego County General Hospital *	San Diego, Calif.	C. L. Stealy	3,908	7,079	521	103	2	7/1	9-12	164.00
Children's Hospital *	San Francisco	D. Atkinson	399 ^b	1,467 ^b	..	..	1	..	9	..
Franklin Hospital *	San Francisco	E. L. Bruck	1,262	..	120	41	3	7/1	9-12	100.00
Mount Zion Hospital *	San Francisco	A. L. Cohn and J. J. Sampson	1,671	..	147	61	3	7/1	9-15	75.00
St. Luke's Hospital *	San Francisco	H. P. Hill	2,120	..	123	25	2	7/1	9-12	200.00
San Francisco Hospital *	San Francisco	L. H. Briggs	3,548	..	577	170	7	Varies	9	115.00
Stanford University Hospitals *	San Francisco	A. L. Bloomfield	1,935	18,344	115	50	7	7/1	9-15	20.00
University of California Hospital *	San Francisco	W. J. Kerr	2,048	24,070	87	70	6	Varies	9-12	20.00
Santa Clara County Hospital *	San Jose, Calif.	G. Gray	1,777 ^b	2,610 ^b	..	..	5	7/1	9-26	165.00
Fairmont Hospital of Alameda County *	San Leandro, Calif.	..	925 ^b	..	..	..	5	7/1	9	105.00
Colorado General Hospital *	Denver	..	1,600	15,426	156	135	12	7/1	9-15	70.00

Numerical and other references will be found on page 405.

7. MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residents	Beginning of Service (1945)	Length of Service (Months)	Beginning Salary (Monthly)
Denver General Hospital*	Denver	M. Katzman	1,635	2,350	474	103	2	7/1	9-24	\$50.00
Fitzsimons General Hospital	Denver									
Grace Hospital*	New Haven, Conn.	S. J. Goldberg	1,006	612	118	12	4	7/1	9	
New Haven Hospital**	New Haven, Conn.	F. G. Blake	2,724 ^b	7,311 ^b	293	15	7	7/1	9-12	
Central Dispensary and Emergency Hosp.**	Washington, D. C.	H. M. Kaufman	1,695	2,381	145	58	2	7/1	9-12	
Freedmen's Hospital**	Washington, D. C.	J. B. Johnson	998	7,114	234	68	9	1/1	9-36	
Gallinger Municipal Hospital**	Washington, D. C.	W. M. Yater	2,302	1,220	416	228	10	7/1	9	
Garfield Memorial Hospital**	Washington, D. C.	B. F. Weems	2,356	2,382	142	4	4	7/1	9-18	75.00
University Hospital**	Washington, D. C.	W. M. Yater	1,205	6,277	104	47	4	7/1	9-36	75.00
University Hospital**	Washington, D. C.	P. F. Dickens	460	1,583	50	30	3	9/1	9	100.00
James M. Jackson Memorial Hospital*	Jacksonville, Fla.	L. Limbaugh	450		123	41	3	7/1	9	125.00
Grady Memorial Hospital*	Miami, Fla.		7,108		564	131	2	7/1	9	83.00
St. Joseph Infirmary*	Atlanta, Ga.	H. C. Sauls	2,123	47,066	342	163	9	7/1	9	20.00
University Hospital**	Atlanta, Ga.	J. H. Hines	1,352	536	68	15	2	7/1	9-36	125.00
Emory University Hospital*	Augusta, Ga.	V. P. Sydenstricker	2,423	3,898	261	38	6	10/1	9-18	35.00
Cook County Hospital**	Chicago	C. O. Maher	15,601 ^b	18,110 ^b	3,763 ^b	537 ^b	16	1/1, 7/1	9-36	25.00
Mercy Hospital-Loyola University Clinics*	Chicago	F. C. Val Dez	2,029	21,781	157	66	1	10/1	9-36	75.00
Michael Reese Hospital**	Chicago	J. Meyer	3,045	16,499	312	139	5	Varies	9-36	25.00
Mount Sinai Hospital**	Chicago	N. I. Fox	1,500 ^b	6,246 ^b			1	9		
Norwegian-American Hospital**	Chicago	A. E. Lehnert	1,703		172	38	1	1/1	9-24	150.00
Passavant Memorial Hospital**	Chicago	L. J. Pollock	1,981	1,501	67	45	6	9+		
Proctor Hospital*	Chicago	R. C. Brown	3,923	15,518	164	69	4	1/1, 7/1	9-36	50.00
Proctor Hospital*	Chicago	A. F. Connor	630	16,767	70	25	1	1/1	9	50.00
St. Joseph's Hospital*	Chicago	R. W. Keeton	540	2,065	58	53	4	9-36	35.00	
St. Luke's Hospital**	Chicago	L. E. Dick	1,897	1,027	121	32	2	1/1, 10/1	9	125.00
University of Chicago Clinics**	Chicago	R. W. Keeton	3,263	5,507	180	108	6	7/1	9-36	25.00
Wesley Memorial Hospital**	Chicago	G. F. Dick	1,903	38,363	95	61	11	Every 9 mos	9-36	25.00
Evanston Hospital*	Chicago	P. S. Rhoads	2,820		139	67	5	1/1	9-12	25.00
Evanston Hospital*	Evanston, Ill.	L. D. Snorf	2,406	10,391			1	8/1	9+	100.00
St. Francis Hospital**	Evanston, Ill.		3,119		251	50	1	Varies	9-12	75.00
St. Francis Hospital**	Peoria, Ill.	C. Fischer	3,774	8,650	311	74	2	7/1	9-24	150.00
Indianapolis City Hospital**	Indianapolis	H. F. Dunlap	2,120	18,292	457	119	6	4/1	9-36	30.00
Indiana University Medical Center**	Indianapolis	J. O. Ritchey	2,012	8,213	171	73	4	9-36	33.00	
University Hospitals**	Iowa City, Ia.	F. M. Smith	2,136	3,380	185	72	12	7/1	9	25.00
University of Kansas Hospitals**	Kansas City, Kan.	R. H. Major	1,547	11,455	94	50	5	9-36	50.00	
Louisville General Hospital*	Louisville, Ky.	J. W. Moore	2,128	24,811	387	70	12	7/1	9	54.00
Charity Hospital of Louisiana**	New Orleans		3,203	56,502	781	211	33	Varies	9-48	60.00
Touro Infirmary*	New Orleans	W. Wirth	1,745	4,490	162	60	2	9	50.00	
Baltimore City Hospitals**	Baltimore	C. H. Boyd	1,790		431	161	10	4/1	9-12	40.00
Church Home and Infirmary**	Baltimore	Z. R. Morgan	626	671	59	29	2	7/1	9-12	35.00
Franklin Square Hospital**	Baltimore	W. H. Smith	581	632	50	12	2	10/1	9	100.00
Hospital for Women**	Baltimore	W. Fort	468	2,821	23	3	2	4/1	9-12	50.00
Johns Hopkins Hospital**	Baltimore	W. T. Longcope	4,811	65,304	312	212	10	7/1	9	
Maryland General Hospital*	Baltimore	D. C. Streett	664	253	110	16	2	7/1	9-12	50.00
Mercy Hospital*	Baltimore	H. R. Peters			149	28	4	7/1	9	
Provident Hospital and Free Dispensary*	Baltimore	E. B. Jarrett	444	214			2	1/1	9-12	50.00
St. Agnes' Hospital**	Baltimore	N. Nitsch	824	212	110	24	1	9		
St. Joseph's Hospital*	Baltimore	F. J. Geraghty	810	1,035	115	15	3	7/1	9-36	50.00
Sinai Hospital**	Baltimore		1,439	3,066	165	85	3	7/1	9-12	35.00
South Baltimore General Hospital*	Baltimore	G. McLean	556	1,574	73	7	2	9		
Union Memorial Hospital*	Baltimore	W. C. Buetjer	1,740	3,834	174	28	5	7/1	9-36	50.00
University Hospital**	Baltimore	T. P. Sprunt	1,473	3,667	198	115	4	7/1	9	50.00
West Baltimore General Hospital**	Baltimore	D. Tenner	580	411	93	20	2	6/1	9	70.00
Beth Israel Hospital*	Boston	H. Linenthal	1,077	7,013	179	83	2	7/1	9	79.76
Boston City Hospital**	Boston	G. R. Minot	12,153	35,552	2,015	414	21	7/1	9-12	50.00
Joseph H. Pratt Diagnostic Hospital*	Boston	S. Proger	2,835	1,993			6	9-18	\$3.37	
Labey Clinic	Boston						24	9		
Massachusetts General Hospital**	Boston		1,750 ^b	21,605 ^b			14	9		
Massachusetts Memorial Hospitals*	Boston	C. S. Keefer	1,064	5,185	72	30	4	7/1	9	
Peter Bent Brigham Hospital*	Boston	G. W. Thorne	2,280	32,000	210	120	9	Varies	9+	
Worcester City Hospital*	Worcester, Mass.	G. W. Halgh	1,538	4,218	349		2	7/1	9	50.00
University Hospital**	Ann Arbor, Mich.	C. W. Sturgis	2,519	39,512	163	110	22	Every 9 mos	9	100.53
Alexander Blain Hospital	Detroit	R. L. Fisher	425	20,435	27	16	1	9-48	200.00	
City of Detroit Receiving Hospital**	Detroit	G. B. Myers	4,300	35,524	983	358	10	7/1	9-27	145.75
Grace Hospital*	Detroit	L. T. Colvin	3,322	5,942	274	26	3	7/1	9-36	125.00
Harper Hospital**	Detroit	H. A. Freund	2,378		240	87	7	9+		
Henry Ford Hospital**	Detroit	F. J. Sladen	6,115	107,509	230	91	30	7/1	9-63	175.00
Providence Hospital*	Detroit	L. J. Bailey	1,962		301	166	1	9-48	140.00	
St. Mary's Hospital*	Detroit	W. J. Wilson Sr.	2,047	1,936	175	88	3	Varies	9-24	150.00
Woman's Hospital**	Detroit	B. I. Johnstone	550 ^b		54	23	1	9-18	100.00	
Eloise Hospital and Infirmary**	Eloise, Mich.	M. R. McQuiggan	7,124	21,149	563	222	13	7/1	9-12	160.00
Hurley Hospital*	Flint, Mich.		1,717		215	62	1	7/1	9	125.00
Blodgett Memorial Hospital**	Grand Rapids, Mich.		647 ^b				1	9		
Butterworth Hospital**	Grand Rapids, Mich.	A. J. Baker	2,048		214	83	1	9	150.00	
St. Mary's Hospital*	Duluth, Minn.	F. J. Hirschboeck	1,718		118	70	1	7/1	9-12	125.00
Minneapolis General Hospital**	Minneapolis	G. Fahr	2,115	16,789	385	155	6	7/1	9-18	91.50
University Hospitals**	Minneapolis	C. J. Watson	1,150	22,350	116	86	6	7/1	9-26	91.50
Mayo Foundation	Rochester, Minn.	R. M. Wilder	(See page 405)				180	9		
Ancker Hospital*	St. Paul	A. Hoff	1,627	9,357	275	203	8	7/1	9	155.00
Charles T. Miller Hospital*	St. Paul	C. N. Hensel and E. T. F. Richards	2,317	5,784			2	Every 9 mos	9	
St. Louis County Hospital**	Clayton, Mo.	H. S. Liggett	671	21,470	139	36	4	7/1	9-18	60.00
Kansas City General Hospital*	Kansas City, Mo.	D. A. Williams	2,095	10,725	392	242	3	7/1	9-24	50.00
St. Joseph Hospital*	Kansas City, Mo.	H. L. Jones	2,060				1	Varies	9	75.00
St. Mary's Hospital**	Kansas City, Mo.	P. F. Stookey	1,226		125	56	1	Varies	9-12	150.00
Barnes Hospital**	St. Louis	W. B. Wood	4,264	21,400	240	164	12	7/1	9-36	25.00
De Paul Hospital*	St. Louis	E. P. Buddy	1,328	1,161	179	23	2	7/1	9	60.00
Homer G. Phillips Hospital**	St. Louis	H. Balger	1,098	9,439	488	79	6	1/1	9	80.00
Jewish Hospital**	St. Louis	L. Sale	2,704	6,755	209	56	4	7/1	9	30.00
Missouri Baptist Hospital*	St. Louis	S. B. Grant	1,689				2	7/1	9	70.00
St. Anthony's Hospital*	St. Louis	R. V. Powell	1,237		99	20	1	7/1	9	50.00
St. John's Hospital*	St. Louis	C. H. Nelson	2,226	4,909	192	41	2	6/1	9-24	40.00
St. Louis City Hospital**	St. Louis	D. L. Sexton	3,573	6,094	719	340	8	7/1	9	50.00

7. MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated *	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies *	Beginning of Service (1916)	Length of Service (Months)	Beginning Stipend
St. Luke's Hospital *	St. Louis	A. B. Day	829	.....	.....	.....	1	7/1	9	\$150.00
St. Mary's Group of Hospitals *	St. Louis	R. A. Kinsella	3,565	45,103	245	101	9	7/1	9-24	33.00
Creighton Memorial St. Joseph's Hospital **	Omaha	A. Sachs	2,903	4,899	166	39	1	7/1	9-12	100.00
Jersey City Hospital *	Jersey City, N. J.	T. J. White	5,103	20,634	631	65	Varies	7/1	9-12	35.00
Albany Hospital **	Albany, N. Y.	L. W. Gorham	1,892	3,823	163	79	4	7/1	9-12	25.00
Brooklyn Hospital *	Brooklyn	E. P. Maynard	1,735	11,940	169	83	.....	.....	9	.....
Coney Island Hospital **	Brooklyn	T. J. Longo	1,373	23,156	353	70	7/1	9	9-12	60.00
Cumberland Hospital *	Brooklyn	J. J. Guttman	1,897	26,254	331	75	7/1	9	9-12	110.00
Greenpoint Hospital **	Brooklyn	A. Klein	1,278	10,104	248	31	1	7/1	9-12	25.00
Jewish Hospital *	Brooklyn	J. Crawford and H. Feinblatt	1,727	25,850	241	61	4	7/1	9-18	60.00
King County Hospital **	Brooklyn	W. Dock	10,903	16,704	2,776	315	8	7/1	9-27	25.00
Long Island College Hospital **	Brooklyn	W. Dock	1,530	10,415	138	57	2	7/1	9	.....
Norwegian Lutheran Deaconesses' Home and Hospital **	Brooklyn	.....	1,906	241	.....	.....	1	10/1	9	.....
Buffalo General Hospital *	Buffalo	C. Greene	2,321	12,457	255	103	8	.....	9	.....
Edward J. Meyer Memorial Hospital **	Buffalo	D. K. Miller	3,130	9,876	456	154	0	7/1	9-45	59.00
Millard Fillmore Hospital *	Buffalo	D. McKay	1,215	.....	134	38	1	7/1	9-12	50.00
Mary Imogene Bassett Hospital *	Cooperstown, N. Y.	G. M. Mackenzie	.....	.....	.....	.....	1	10/1	9	.....
Meadowbrook Hospital **	Hempstead, N. Y.	E. C. Jessup	884	.....	144	51	1	7/1	9	110.00
Queens General Hospital *	Jamaica, N. Y.	A. W. Victor	2,824	10,845	633	204	2	7/1	9-24	110.00
Charles S. Wilson Memorial Hospital *	Johnson City, N. Y.	J. C. Zillhardt	1,894	.....	197	46	1	7/1	9-12	175.00
New Rochelle Hospital *	New Rochelle, N. Y.	C. A. Read	1,757	1,315	210	71	1	7/1	9	100.00
Bellerue Hospital, Div. I—Columbia U. *	New York City	D. W. Richards Jr.	2,649	20,548	266	93	1	Varies	9	100.00
Bellerue Hospital, Div. II—Cornell U. *	New York City	A. Lincoln	2,922	25,315	234	107	1	Varies	9	100.00
Bellerue Hospital, Div. III—N. Y. Univ. *	New York City	W. S. Tillett	3,828	15,735	386	115	28	Varies	9	100.00
Bellerue Hospital, Div. IV—Open Div. *	New York City	C. Nammack	2,489	15,530	190	85	1	Varies	9	100.00
Bronx Hospital *	New York City	H. Wessler	1,563	16,167	178	45	2	7/1	9	75.00
Flower and Fifth Avenue Hospitals **	New York City	L. J. Boyd	1,186	7,022	126	31	2	.....	9-12	100.00
Fordham Hospital *	New York City	J. J. McGowan	3,453b	76,598b	.....	.....	.....	7/1	9	60.00
Goldwater Memorial Hospital **	New York City	T. McGoldrick and J. W. Shannon	1,699	793	201	12	23	7/1	9-12	50.00
Gouverneur Hospital *	New York City	T. Sanders	1,250	43,344	255	23	3	.....	9	60.00
Harlem Hospital **	New York City	O. La Rotonda	5,717b	33,333b	.....	.....	6	1/1, 7/1	9	50.00
Lenox Hill Hospital **	New York City	.....	1,412	9,644	142	58	1	7/1	9	25.00
Lincoln Hospital *	New York City	L. H. Shearer	2,602	23,943	691	135	4	7/1	9	60.00
Metropolitan Hospital *	New York City	L. J. Boyd	3,121	29,143	569	100	3	7/1	9-12	100.00
Montefiore Hospital for Chronic Diseases *	New York City	.....	468	167	52	4	1/1, 7/1	9-12	50.00	
Morrisania City Hospital **	New York City	E. Flood	4,076	14,015	845	85	2	7/1	9	50.00
Mount Sinai Hospital *	New York City	.....	.....	.....	.....	.....	5	1/1, 7/1	9-18	50.00
New York City Hospital *	New York City	J. H. Carroll	2,662	22,323	435	146	4	7/1	9	60.00
New York Hospital *	New York City	D. P. Barr	1,978	33,561	135	88	20	7/1	9-60	25.00
New York Infirmary for Women and Children *	New York City	M. Manter	457	2,144	14	1	1	9/1	9-12	75.00
New York Polyclinic Medical School and Hospital *	New York City	.....	1,115	5,937	73	18	2	7/1	9	25.00
New York Post-Graduate Medical School and Hospital *	New York City	W. G. Lough	1,639	36,323	84	25	5	7/1	9-24	30.00
Presbyterian Hospital *	New York City	W. W. Palmer	4,230	45,166	270	.....	15	.....	9	41.67
St. Luke's Hospital *	New York City	G. M. Goodwin and F. W. Bishop	2,829	37,612	230	96	2	Varies	9-36	50.00
St. Vincent's Hospital **	New York City	T. A. Martin	3,197	4,915	527	114	4	7/1	9-18	25.00
Genesee Hospital *	Rochester, N. Y.	D. B. Jewett	1,495	5,994	178	70	2	7/1	9-12	100.00
Rochester General Hospital *	Rochester, N. Y.	C. P. Thomas	1,462	4,622	159	127	3	7/1	9-36	75.00
St. Mary's Hospital *	Rochester, N. Y.	B. J. Duffy	2,770	1,385	185	47	1	7/1	9-12	125.00
Strong Memorial and Rochester Municipal Hospitals *	Rochester, N. Y.	W. S. McCann	4,136	16,114	406	297	13	7/1	9-48	41.66
Hospital of the Good Shepherd *	Syracuse, N. Y.	E. C. Reiffenstein	.....	.....	.....	.....	2	.....	9	.....
Grasslands Hospital **	Vaithalla, N. Y.	M. D. Touart	1,120	9,200	272	148	2	7/1	9-12	75.00
Duke Hospital *	Durham, N. C.	F. M. Hanes	3,836	25,506	154	107	12	Every 9 mos	9	83.33
Watts Hospital *	Durham, N. C.	.....	2,261	776	103	19	1	7/1	9	75.00
City Hospital *	Winston-Salem, N. C.	S. F. Prohl	1,898	5,273	218	48	4	.....	9-4	75.00
North Carolina Baptist Hospital *	Winston-Salem, N. C.	G. T. Harrell	1,577	5,718	80	35	4	7/1	9-4	41.66
Trinity Hospital *	Minot, N. D.	.....	1,171b	.....	.....	.....	1	.....	9	.....
City Hospital *	Akron, O.	.....	2,387	.....	265	82	2	.....	9	100.00
Mersey Hospital *	Canton, O.	J. D. O'Brien	1,931	.....	146	27	1	7/1	9	100.00
Christ Hospital *	Cincinnati	D. A. Tucker	1,929	2,821	174	37	2	7/1	9-15	75.00
Cincinnati General Hospital *	Cincinnati	M. A. Blankenhorn	2,323	22,538	674	266	26	7/1	9-26	.....
Deaconess Hospital *	Cincinnati	D. Osborn and H. H. Shook	2,624	.....	145	36	1	9/1	9	125.00
Good Samaritan Hospital *	Cincinnati	G. Topmoller	4,863	1,902	273	61	3	7/1	9-24	50.00
Jewish Hospital **	Cincinnati	R. Rothenberg	2,151	.....	196	51	2	10/1	9-27	137.50
City Hospital *	Cleveland	R. W. Scott	1,929	19,506	470	146	11	7/1	9-4	25.00
Cleveland Clinic Foundation Hospital *	Cleveland	R. L. Haden	1,582	.....	.....	.....	32	.....	9-4	125.00
Mount Sinai Hospital *	Cleveland	S. Berger	1,502	7,451	152	44	2	7/1	9-12	75.00
St. Alexis Hospital *	Cleveland	H. V. Paryzek	2,427	4,424	215	53	1	7/1	9	120.00
St. John's Hospital *	Cleveland	W. Fornes	1,329	.....	101	15	1	7/1	9	100.00
St. Luke's Hospital *	Cleveland	L. Taylor	2,692	13,566	208	86	3	7/1	9-26	50.00
St. Vincent Charity Hospital *	Cleveland	C. S. Stone	1,877	6,079	192	62	1	.....	9	75.00
University Hospitals *	Cleveland	J. T. Wearn	3,424b	18,682b	.....	.....	17	7/1	9-4	.....
St. Francis Hospital *	Columbus, O.	L. H. Van Buekkirk	815	522	151	35	1	.....	9	.....
Starling-Lovins University Hospital *	Columbus, O.	C. A. Doan	1,242	10,675	119	48	7	7/1	9-12	50.00
White Cross Hospital *	Columbus, O.	W. F. Millhon	1,671	.....	88	39	1	7/1	9-12	100.00
Miami Valley Hospital *	Dayton, O.	H. D. Cassell	2,542	.....	223	67	2	7/1	9	75.00
Huron Road Hospital *	East Cleveland, O.	.....	1,025	2,670	116	50	2	7/1	9-18	70.00
Maumee Valley Hospital *	Toledo, O.	N. Morris	1,524	9,149	259	73	1	.....	9	.....
St. Vincent's Hospital *	Toledo, O.	C. W. Waggoner	3,187	2,017	296	25	2	.....	9	.....
St. Elizabeth's Hospital *	Youngstown, O.	R. B. Poling	2,578	816	270	23	1	.....	9	.....
Youngstown Hospital *	Youngstown, O.	W. H. Bunn	4,511b	816b	.....	.....	2	7/1	9	125.00
St. Anthony Hospital *	Oklahoma City	P. M. McNeill	2,017	.....	.....	.....	1	.....	9	75.00
University Hospitals *	Oklahoma City	W. Langston	829	10,745	109	41	2	4/1, 9/1	9-15	75.00
Good Samaritan Hospital *	Portland, Ore.	C. P. Wilson	4,366	6,214	225	105	1	7/1	9	120.00
University of Oregon Medical School Hospital and Clinics *	Portland, Ore.	L. Selling	1,734	16,664	251	160	4	7/1	9-15	75.00

Numerical and other references will be found on page 405.

7. MEDICINE—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Ablington Memorial Hospital *	Abington, Pa.	J. T. Beardwood Jr.	1,461	2,063	156	25	2	7/1	9-18	\$30.00
Bryn Mawr Hospital *	Bryn Mawr, Pa.	W. J. Stainsby	635	.....	73	31	2	7/1	9	100.00
George F. Geisinger	Danville, Pa.	S. Bradbury and	2,004	15,089	139	36	2	7/1	9	75.00
Germantown Dispensary	Philadelphia	O. C. Watt, Jr.	2,088	15,025	186	66	1	7/1	9-36	50.00
*Graduate Hospital of the University of Pennsylvania *	Philadelphia	G. M. Piersol	.....	.....	.....	.....	.....	.....	.....	.....
Hahnemann Hospital *	Philadelphia	G. H. Wells	900	7,864	80	24	2	7/1	9-24	.....
Hosp. of the University of Pennsylvania *	Philadelphia	O. H. P. Pepper	1,001	7,207	248	.....	12	7/1	9-18	.....
Hospital of the Woman's Medical College *	Philadelphia	W. G. Leaman	3,215	19,008	160	109	7	7/1	9	50.00
Jefferson Medical College Hospital *	Philadelphia	H. A. Reimann	894	.....	54	32	1	7/1	9	50.00
Jewish Hospital *	Philadelphia	.....	2,668	9,069	.....	.....	3	10/1	9	.....
Mount Sinai Hospital *	Philadelphia	.....	1,801	1,981	244	177	2	.....	9-18	75.00
Pennsylvania Hospital *	Philadelphia	D. L. Farley and	1,473 ^b	.....	.....	.....	2	.....	9	.....
Philadelphia General Hospital *	Philadelphia	L. S. Carey	1,003	6,150	240	72	3	7/1	9-18	20.00
Presbyterian Hospital *	Philadelphia	R. Boles	4,704	.....	1,096	.....	2	Varies	9	93.33
Temple University Hospital *	Philadelphia	T. Klein	.....	.....	.....	.....	1	7/1	9	50.00
Woman's Hospital *	Philadelphia	.....	1,662	4,112	135	45	6	7/1	9-36	52.00
Allegheny Gener	Pittsburgh	E. W. Willets	1,478	4,183	5	3	12	7/1	9	50.00
Elizabeth Steel	Pittsburgh	J. D. Heard	1,682	5,741	270	40	2	7/1	9	100.00
Mercy Hospital *	Pittsburgh	W. W. MacLachlan	1,405	.....	122	26	12	7/1	9	83.33
Montefiore Hospital *	Pittsburgh	L. H. Crisp	2,279	.....	249	38	1	7/1	9-12	.....
Presbyterian Hospital *	Pittsburgh	A. H. Colwell	1,201	4,915	128	35	2	.....	9	.....
St. Francis Hospital *	Pittsburgh	A. W. Sherrill and	2,102	.....	161	21	3	7/1	9-36	50.00
Reading Hospital *	Reading, Pa.	F. B. Utley	1,206	1,833	130	18	3	10/1	9-36	80.00
Robert Packer Hospital *	Sayre, Pa.	W. S. Bertolet	1,078 ^b	1,261 ^b	231	114	1	7/1	9-12	125.00
Roper Hospital *	Charleston, S. C.	S. D. Conklin	2,463	5,007	159	35	3	7/1	9-12	125.00
John Gaston Hospital *	Memphis, Tenn.	W. H. Lelley	2,366	13,585	260	96	4	7/1	9-27	50.00
George W. Hubbal	Nashville, Tenn.	C. H. Sanford	2,274	15,127	446	165	3	.....	9	.....
Nashville General	Nashville, Tenn.	E. L. Turner	943	3,237	87	28	3	1/1	9	75.00
St. Thomas Hospital *	Nashville, Tenn.	J. O. Manier	1,133	13,418	128	24	4	.....	9	.....
Vanderbilt University Hospital *	Nashville, Tenn.	R. H. Kampmeyer	1,304	.....	143	42	2	7/1	9-18	125.00
Baylor University Hospital *	Dallas, Texas	D. W. Carter	1,588	26,080	106	64	5	7/1	9	.....
Parkland Hospital *	Dallas, Texas	H. Hawkins and	3,558	811	205	23	2	1/1	9	50.00
John Sealy Hospital *	Galveston, Texas	T. Harrison	1,010 ^b	21,202 ^b	.....	.....	4	.....	9-4	50.00
Hermann Hospital *	Houston, Texas	C. T. Stone	1,170	10,051	144	67	6	Varies	9-4	50.00
Jefferson Davis Hospital *	Houston, Texas	F. R. Lumms	1,498	3,552	126	57	3	1/1	9-36	50.00
Southern Pacific Hospital *	Houston, Texas	H. Caplovitz	1,782	10,663	301	103	2	.....	9	50.00
Scott and White Hospital *	Houston, Texas	M. D. Levy	939	12,754	22	5	2	.....	9-24	100.00
Salt Lake County General Hospital *	Temple, Texas	V. M. Longmire	1,770	.....	57	19	2	Varies	9-4	250.00
Mary Fletcher Hospital *	Salt Lake City	M. M. Windrobe	658	385	119	.....	6	.....	9-18	50.00
University of Virginia Hospital *	Burlington, Va.	E. L. Amidon	1,037	369	119	56	2	7/1	9-12	150.00
Chesapeake and Ohio Hospital *	Charlottesville, Va.	H. B. Mulholland	2,437	9,246	140	57	13	7/1	9	.....
Norfolk General Hospital *	Clifton, Forge, Va.	G. S. Hartley	1,920	3,237	65	36	1	5/1	9	69.00
Medical College of Virginia Hospital Div. *	Norfolk, Va.	.....	1,830	.....	163	23	1	.....	9	.....
King County Hospital *	Richmond, Va.	W. B. Porter	3,670	10,432	317	84	7	7/1	9	37.50
Virginia Mason Hospital *	Seattle, Wash.	P. Whalen	3,841	5,755	878	228	3	7/1	9-18	90.00
Chesapeake and Ohio Hospital *	Seattle, Wash.	J. M. Blackford	3,189	.....	203	57	2	7/1	9-18	100.00
St. Mary's Hospital *	Huntington, W. Va.	W. E. Yest	1,701 ^b	5,075 ^b	.....	.....	1	.....	9	.....
State of Wisconsin General Hospital *	Huntington, W. Va.	W. C. Swann	1,614	.....	230	57	1	.....	9	100.00
Columbia Hospital *	Madison, Wis.	J. S. Evans	3,645	20,045	115	72	9	1/1, 4/1	9-36	25.00
Milwaukee County Hospital *	Milwaukee	J. J. Pink	848	.....	92	38	1	7/1	9-18	50.00
Milwaukee County Hospital *	Milwaukee	F. D. Murphy	7,246	18,762	810	258	11	7/1	9-36	65.32
St. Joseph's Hospital *	Milwaukee	R. E. Fitzgerald	2,227	.....	293	39	1	7/1	9-24	100.00
Queens Hospital *	Honolulu, Hawaii	H. L. Arnold Sr.	3,741	.....	198	48	1	7/1	9-18	150.00

Hospitals, 246; Assistant Residencies and Residencies, 1,236

8. MIXED

In addition to the hospitals listed below, all hospitals approved for intern training (785) are likewise accredited for mixed residencies.

Name of Hospital	Location	Chief of Service	Inpatients Treated	Deaths	Autopsies	Asst. Res. and Residencies	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Baptist Hospitals	Birmingham, Ala.	J. L. Carmichael	7,068	168	34	5	Varies	9	\$150.00
St. Vincent's Hospital	Birmingham, Ala.	H. E. Conwell	4,434	83	20	4	Varies	9	.....
South Highlands Infirmary	Birmingham, Ala.	L. E. Kirby	6,415	131	30	4	1/1, 9/1	9	120.00
St. Margaret's Hospital	Montgomery, Ala.	J. H. Blue	5,741	229	12	3	Varies	9	.....
St. Mary's Hospital and Sanatorium	Tucson, Ariz.	J. A. Omer	5,138	183	23	2	.....	9	.....
Leo N. Levi Memorial Hospital	Hot Springs, Ark.	D. C. Lee	968	46	11	2	.....	9	.....
Kern General Hospital	Bakersfield, Calif.	N. N. Rilcoff	7,325	502	149	6	.....	9	.....
Paradise Valley Hospital and Sanatorium	National City, Calif.	A. R. Stadin	4,551	128	26	3	.....	9	.....
Monterey County	Salinas, Calif.	J. C. Sharp	1,783	144	23	4	7/1	9-12	100.00
St. Helena San.	Sanitarium, Calif.	G. K. Abbott	3,447	4,776	.....	2	7/1	9	105.03
Sonoma County Hospital *	Santa Rosa, Calif.	J. L. Spear	2,288	302	104	7	.....	9	.....
Memorial Hospital *	Colorado Spgs., Colo.	P. A. Draper	2,890	124	11	2	7/1	9-12	185.00
St. Francis Hospital and Sanatorium	Colorado Spgs., Colo.	G. W. Bancroft	2,426	102	21	2	.....	9	.....
St. Mary Hospital	Pueblo, Colo.	J. Snedec	2,967	158	12	2	.....	9	.....
Bristol Hospital	Bristol, Conn.	R. A. Richardson	3,666	124	15	2	.....	9	.....
Greenwich Hospital *	Greenwich, Conn.	J. A. McCreery	2,985	100	49	3	7/1	9-12	75.00
Riverside Hospital *	Jacksonville, Fla.	T. Z. Cason	1,677	51	8	1	.....	9	.....
St. Joseph's Hospital	Alton, Ill.	C. E. Merkle	4,920	179	23	3	.....	9	.....
MacNeal Memorial Hospital *	Berwyn, Ill.	J. C. Smith	6,240	206	60	4	.....	9	.....
St. Francis Hospital	Blue Island, Ill.	E. J. Pronger	3,657	108	32	3	.....	9	.....
St. Anthony's Hospital	Rock Island, Ill.	J. C. Souders	3,589	180	36	2	.....	9	.....

8. MIXED—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Deaths	Autopsies	Asst. Res. and Residencies*	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Clinic Hospital	Bluffton, Ind.	T. E. Caylor and H. D. Caylor	1,942	65	36	1	.....	9	\$100.00
St. Mary's	"	E. H. Weber	4,615	147	19	1	.....	9	.....
Lafayette	"	F. T. Romberger	3,751	136	5	1	.....	9	.....
St. Luke's	"	F. Johnston	5,916	257	20	1	9/1, 10/1	9	175.00
Jewish Hos	"	W. C. Martin	2,775	135	19	1	6/1	9-12	150.00
E. A. Cona	"	F. C. Bennett	5,289	239	26	1	.....	9	.....
Suburban	"	C. R. Halley	1,550	65	33	1	4/1	9	100.00
Long Island Hospital	Boston	R. I. Smith	871	154	16	1	Varies	9	205.33
St. Anne's Hospital	Fall River, Mass.	E. E. Hussey	4,511	90	37	1	Varies	9	.....
Frammingham Unk	"	E. A. Gaston	3,656	80	12	1	1/1, 7/1	9-18	41.67
Malden Hospital	"	R. Hirtle	5,327	194	23	1	.....	9	100.00
Tewksbury State	"	C. W. Houghton	1,634	395	2	1	10/1	9-24	150.00
Parkside Hospital	Detroit	R. G. Robinson	1,655	42	22	1	Varies	9	125.00
Saratoga General Hospital	"	C. V. Smith	6,239	.....	.....	1	.....	9	.....
Mercy Hospital	"	E. S. Thornton	4,594	156	10	1	.....	9	.....
St. Joseph Mercy Hospital	"	O. O. Beck	7,782	240	25	1	.....	9	.....
Wrandotte General Hospi	"	S. A. Kwasiborski	5,447	154	63	1	1/1, 7/1, 10/1	9-12	230.00
Hibbing General Hospital	"	C. E. Carstens	3,556	118	101	1	.....	9	.....
Eitel Hospital	"	E. W. Bedford	5,145	125	30	1	.....	9	.....
Fairview Hospital	"	E. G. Oppen	6,175	198	50	1	.....	9	.....
"	"	H. Ulrich	6,563	183	45	1	.....	9	.....
"	"	G. Earl	4,105	58	41	1	.....	9	.....
"	"	B. I. Derauf	3,172	110	14	1	7/1	9-12	.....
"	"	H. Unterberg	2,163	102	53	1	7/1	9	200.00
Lincoln County Hospital	Omaha	T. D. Boler	1,725	288	39	1	.....	9	.....
Elliot Hospital	Manchester, N. H.	G. F. Dwinell	2,834	90	69	1	7/1	9-12	75.00
Sacred Heart Hospital	Manchester, N. H.	D. J. Sullivan	2,882	91	39	1	.....	9-24	100.00
Auburn City Hospital	Auburn, N. Y.	G. P. Ross	6,195	207	47	1	1/1	9-12	75.00
Jewish Sanitarium and Hospital for Chronic Diseases	Brooklyn	B. Koven	221	147	36	1	1/1	9-24	200.00
St. Joseph Hospital	Far Rockaway, N. Y.	A. S. Tewyer	3,170	90	15	1	Varies	9	.....
Kingston Hospital	Kingston, N. Y.	G. W. Ross	2,510	149	19	1	.....	9	.....
Beekman Hospital	New York City	R. Colp	2,000	64	22	1	1/1, 10/1	9-12	75.00
Richmond Memorial Hospital	Staten Island, N. Y.	D. V. Catalano	2,237	135	17	1	.....	9	.....
Wyoming County Community Hospital	Warsaw, N. Y.	H. S. Martin	2,581	137	19	1	.....	9	.....
Mercy Hospital	Charlotte, N. C.	R. H. Lafferty	5,630	165	35	1	Varies	9	125.00
Highsmith Hospital	Fayetteville, N. C.	J. F. Highsmith	4,621	170	6	1	Varies	9	100.00
Park View Hospital	Rocky Mount, N. C.	F. S. Boice	3,295	105	13	1	7/1, 10/1	9	100.00
St. John's Hospital	Fargo, N. D.	W. H. Long	4,923	165	41	1	.....	9	.....
Glenville Hospital	Cleveland	J. P. Anderson	3,411	104	23	1	7/1	9	150.00
Grace Hospital	Cleveland	A. E. Biddinger	2,376	90	8	1	.....	9	.....
"	Cleveland	R. A. Warren	4,062	90	31	1	.....	9	150.00
"	Mansfield, Ohio	W. E. Wygant	4,885	208	9	1	.....	9	.....
"	Nashville, Tenn.	W. W. Wilkerson	4,068	161	25	1	.....	9	.....
"	Dallas, Tex.	J. G. McLaurin	4,073	106	11	1	.....	9	.....
"	Fort Worth, Tex.	A. B. Pumphrey	4,065	130	30	1	.....	9-12	200.00
"	Galveston, Tex.	G. P. Lee	5,273	144	22	1	.....	9	.....
Elverside Hospital	Newport News, Va.	J. W. Sayre	5,217	173	27	1	.....	9	.....
Grace Hospital	Newport News, Va.	G. C. Tyler	5,382	151	31	1	.....	9	.....
Retreat for the Sick	Richmond, Va.	A. L. Herring	4,135	79	5	1	.....	9	.....
St. Elizabeth's Hospital	Richmond, Va.	A. S. Brinkley	4,516	122	23	1	.....	9	100.00
Shelstering Arms Hospital	Richmond, Va.	J. S. Harsley	1,543	59	45	1	.....	9	100.00
Maynard Hospital	Richmond, Va.	J. P. Lynch	859	41	19	1	7/1	9	100.00
McMillan Hospital	Seattle, Wash.	W. E. Glasgow	3,421	84	40	1	.....	9	.....
St. Francis Hospital	Charleston, W. Va.	W. O. McMillan	3,034	38	9	1	7/1	9	200.00
St. Mary's Hospital	Charleston, W. Va.	R. L. Anderson	4,521	129	10	1	.....	9	150.00
Mercy Hospital	Clarksburg, W. Va.	J. F. Lembright	4,632	132	52	1	.....	9	.....
La Crosse Lutheran Hospital	Janesville, Wis.	W. H. McGuire	3,130	109	16	1	.....	9	.....
St. Mary's Hospital	La Crosse, Wis.	A. H. Gundersen	3,742	107	44	1	7/1	9	150.00
"	Superior, Wis.	J. R. McNutt	3,163	201	23	1	.....	9	.....

Hospitals, 80; Assistant Residencies and Residencies, 225

9. NEUROLOGY

The following services are approved by the Council and the American Board of Psychiatry and Neurology
(See footnotes 1, 2 and 3)

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies*	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Los Angeles County Hospital**	Los Angeles	S. D. Ingham	1,691	1,200	530	245	12	.....	9-24	\$157.20
Gallinger Municipal Hospital**	Washington, D. C.	.....	482	.....	36	32	12	.....	9+	.....
George Washington University Hospital**	Washington, D. C.	W. Freeman	124	366	3	1	12	9/1	9+	50.00
St. Luke's Hospital**	Chicago	A. P. Solomon	259	520	4	4	1	7/1	9-36	25.00
University of Chicago Clinics**	Chicago	R. B. Richter	184	2,415	10	8	12	Every 9 mos	9	25.00
University Hospitals**	Towa City, Ia.	C. Van Epps	1,073	823	123	12	12	7/1	9	25.00
Charity Hospital of Louisiana**	New Orleans	.....	516	2,757	123	21	10	Varies	9-32	60.00
Baltimore City Hospital**	Baltimore	F. Ford	.....	.....	.....	.....	2	4/1	9-12	40.00
Boston City Hospital**	Boston	D. Denny-Brown	374	4,118	24	3	10	7/1	9	50.00
Massachusetts General Hospital**	Boston	.....	522	6,379	.....	.....	1	.....	9	.....
University Hospital**	Ann Arbor, Mich.	C. D. Camp	519	5,217	20	14	12	Varies	9+	100.55
Henry Ford Hospital**	Detroit	T. J. Heldt	.....	.....	.....	.....	12	7/1	9-36	175.00
Eloise Hospital and Infirmary**	Eloise, Mich.	R. T. Costello	623	719	39	14	12	7/1	9-12	160.00
Mayo Foundation	Rochester, Minn.	H. W. Voltman	.....	.....	.....	.....	10	.....	9	.....
Homer G. Phillips Hospital**	St. Louis	E. F. Gildea	782	895	142	19	2	1/1	9	50.00
Brooklyn Hospital**	Brooklyn	H. B. Merwarth	565	190	.....	.....	2	.....	9+	.....
Kings County Hospital**	Brooklyn	A. Rabiner	1,284	1,847	658	70	4	7/1	9-18	110.00
Bellerue Hospital, Div. II—Cornell U.**	New York City	F. Kennedy	522	5,345	38	14	5	Varies	9+	25.00
Bellerue Hospital, Div. III—N. Y. Univ.**	New York City	S. B. Wortis	2,009	1,500	38	14	2	Varies	9-36	25.00
Goldswater Memorial Hospital**	New York City	H. A. Riley and E. G. Zabrickie	650	310	67	18	8	7/1	9-12	70.00

Numerical and other references will be found on page 405.

9. NEUROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies ^a	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Monthly)
Lenox Hill Hospital ^{2,4}	New York City	T. K. Davis	253		14	6	1	7/1	9	\$35.00
Metropolitan Hospital ^{2,4}	New York City	S. P. Jewett	114 ^b	1,757	26	5	1		9	
Montefiore Hosp. for Chronic Diseases ^{2,4}	New York City		191		25	14	5	1/1, 7/1	9-18	50.00
Morrisania City Hospital ^{2,4}	New York City						1		9	
Mount Sinai Hospital ^{2,4}	New York City						5	1/1, 7/1	9-18	50.00
Presbyterian Hospital ^{2,4}	New York City						15		9+	40.00
New York City Hospital ²	New York City		527	1,330	141	32	1	7/1	9	110.00
Duke Hospital ^{2,4}	Durham, N. C.	R. Graves	172	1,866			4		9	\$3.33
Cincinnati General Hospital ^{2,4}	Cincinnati	H. D. McIntyre and C. Aring								
Hospital of the Univ. of Pennsylvania ^{2,4}	Philadelphia	G. D. Gammon	437	2,662	14	9	2	7/1	9+	
Jefferson Medical College Hospital ^{2,4}	Philadelphia	B. J. Alpers	488	2,300			1		9+	
Temple University Hospital ^{2,4}	Philadelphia		176	843	13	3	1	7/1	9-36	52.00

Hospitals, 31; Assistant Residencies and Residencies, 111

10. NEUROSURGERY

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies ^a	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Monthly)
Los Angeles County Hospital ^{2,4}	Los Angeles	C. Rand	2,124	648	231	24	3	Varies	9-36	\$157.20
Franklin Hospital ²	San Francisco	H. A. Brown	552		17	7	4	7/1	9	
University of California Hospital ^{2,4}	San Francisco	H. C. Naffziger	359		18	14	1	Varies	9	50.00
Hartford Hospital ²	Hartford, Conn.	O. G. Wiedman					2	7/1	9-36	50.00
Chicago Memorial Hospital ²	Chicago	P. O. Bucy	185	1,000	8	7	1	1/1	9-24	200.00
Illinois Neuropsychiatric Institute ²	Chicago	E. Oldberg	293 ^b				3		9+	
Passavant Memorial Hospital ²	Chicago	L. Davis					1		9	
Presbyterian Hospital ²	Chicago	A. Verbrugghen	194	2,150	14	10	1	7/1	9-36	50.00
St. Luke's Hospital ²	Chicago	E. Oldberg	166		19	14	1	7/1	9-36	25.00
University of Chicago Clinics ²	Chicago	A. E. Walker	253	1,231	14	12	2		9	25.00
Johns Hopkins Hospital ²	Baltimore	W. E. Dandy	889		58	34			9+	
Boston City Hospital ^{2,4}	Boston	D. Munro	512		89	10	3	7/1	9	50.00
Lahey Clinic	Boston						6		9+	
Massachusetts General Hospital ²	Boston		232 ^b				3		9	
Henry Ford Hospital ^{2,4}	Detroit	A. S. Crawford	312	1,447	21	7	1	7/1	9-36	175.00
University Hospitals ²	Minneapolis	W. T. Peyton	161	528	35	32	1	7/1	9	
Mayo Foundation	Rochester, Minn.	A. W. Adson					8		9	
Barnes Hospital ²	St. Louis	E. Sachs	260		22	18	12		9	
Albany Hospital ^{2,4}	Albany, N. Y.	E. H. Campbell	337	167	29	12	12	7/1	9-12	25.00
Jewish Hospital ^{2,4}	Brooklyn	L. M. Davidoff	569	498	45	15	3		9-24	25.00
Kings County Hospital ²	Brooklyn	E. J. Browder	2,020	1,193	197	90	1	7/1	9-18	60.00
Buffalo Hospital ^{2,4}	Buffalo	W. B. Hamby	346	7	38	21	1	7/1	9-12	25.00
Bellevue Hospital, Div. III—N. Y. Univ. ^{2,4}	New York City	A. Wright	1,229	4,800	90	80		Varies	9-36	25.00
Presbyterian Hospital ^{2,7}	New York City	T. J. Putnam	3,897	13,744	158		9		9+	40.00
Strong Memorial and Rochester Municipal Hosp. ^{2,4}	Rochester, N. Y.	J. D. French	225	220			2	7/1	9-24	66.00
Cincinnati	Cincinnati	J. P. Evans	271	218	57	30	2		9+	
Cleveland	Cleveland	W. J. Gardner					4		9+	100.00
White	Columbus, O.	H. E. LeFever	688		47	17		7/1	9-12	100.00
Hospit	Philadelphia	F. C. Grant	282	767	46	39	3	7/1	9-36	
Temple University Hospital ^{2,4}	Philadelphia		282	832	35	16	1	7/1	9-36	52.00
Vanderbilt University Hospital ^{2,4}	Nashville, Tenn.	C. Pilcher	349	420	13	8	7		9	25.00
University of Virginia Hospital ²	Charlottesville, Va.	W. G. Crutchfield	636		26	16	1		9	
Medical College of Virginia, Hospital Div. ²	Richmond, Va.	C. C. Coleman	913	307	95	15	3	7/1	9	37.50

Hospitals, 33; Assistant Residencies and Residencies, 89

11. OBSTETRICS AND GYNECOLOGY

The following services are approved by the Council and the American Board of Obstetrics and Gynecology

Navy Hospitals			U. S. Naval Hospital * (OBG)		U. S. Naval Hospital * (OBG)		Philadelphia				
U. S. Naval Hospital * (OBG)			Annapolls, Md.		U. S. Naval Hospital * (OBG)		Philadelphia				
Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated *		Outpatient Visits		Asst. Res. and Residencies *	Beginning of Service (1945)	Length of Ser- vice (Months)	Beginning Stipend (Monthly)
				OB	Gyn	OB	Gyn				
Jefferson and Hillman Hospitals *	Birmingham, Ala.	J. R. Garber and S. G. Stubbins	OBG	903	731	2,129	3,648	4	1/1, 7/1	9-12	\$50.00
Employees' Hospital of the Tennessee Coal Iron and Railroad Company *	Fairfield, Ala.	O. T. West	OB	1,498		7,057		1	1/1	9	200.00
Los Angeles County Hospital **	Los Angeles	E. M. Lazard	OBG	4,878	1,422	1,335	4,056	6	Varies	9-42	157.20
White Memorial Hospital *	Los Angeles	R. J. Thompson	OBG	1,970	778	9,603	6,150	2	7/1	9-12	116.00
Highlands-Alameda County Hospital *	Oakland, Calif.	C. A. De Puy and O. T. McAllister	OBG	840	341			2	7/1	9	80.00
Children's Hospital **	San Francisco	H. A. Stephenson	OBG	2,005	580 ^b			2		9	
St. Mary's Hospital *	San Francisco	P. Arnot	OB	1,867				2	7/1	9-12	100.00
San Francisco Hospital *	San Francisco	W. G. Moore	OBG	714	754	2,965		4	Varies	9	115.00
Stanford University Hospitals *	San Francisco	A. V. Pettit	OBG	1,895	888	13,971		4	7/1	9-18	50.00
University of California Hospital **	San Francisco	H. F. Traut	OBG	1,060	819	5,873	6,927	4	Varies	9	50.00
Santa Clara County Hospital *	San Jose, Calif.	A. Shufelt	OBG	296	307 ^b			1		9	
Colorado General Hospital *	Denver	C. B. Ingraham	OBG	506	337	3,455	1,667	2	7/1	9-18	70.00
Grace Hospital **	New Haven, Conn.	H. B. Perrins	OBG	1,591	586	316	117	4		9	
Hospital of St. Raphael *	New Haven, Conn.		OB	1,962		900		2		9	75.00
New Haven Hospital **	New Haven, Conn.	A. H. Morse	OBG	1,606	681	2,148	2,327	4	7/1	9-12	
Columbia Hospital for Women and Lying-In Asylum *	Washington, D. C.		OBG	3,734	1,050	8,453	4,093	9	1/1	9-24	15.00
Freedmen's Hospital **	Washington, D. C.	J. W. Ross	OBG	2,171	930	3,728	3,054	3	1/1	9-36	
Gallinger Municipal Hospital **	Washington, D. C.		OBG	3,365	514	3,662	2,719	4	7/1	9	

Numerical and other references will be found on page 405.

11. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated *		Outpatient Visits		Asst. Res. and Fellowships *	Beginning of Service (1945)	Length of Ser- vice (Months)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
Garfield Memorial Hospital *	Washington, D. C.	H. P. Parker	OB	2,000	.....	3,475	.....	3	7/1	9-15	\$75.00
Providence Hospital *	Washington, D. C.	G. J. Ellis	OB	2,924	.....	784	.....	1	.....	9-12	75.00
Sibley Memorial Hospital *	Washington, D. C.	J. Kotz	OB	2,958	.....	.....	.....	1	.....	9	20.00
Grady Memorial Hospital *	Atlanta, Ga.	J. R. McCord	OBG	3,161	909	12,496	15,660	10	7/1	9-15	35.00
University Hospital *	Augusta, Ga.	R. Torpin	OBG	1,970	906	5,257	1,252	3	10/1	.....	.....
Chicago Lying-In Hospital and Dispensary	Chicago	B. E. Tucker	OB	.....	.....	.....	.....	11	.....	9-15	150.00
Chicago Maternity Center *	Chicago	J. Fitzgerald	OB	8,214	.....	3,781	.....	8	1/1, 7/1	9-36	25.00
Cook County Hospital *	Chicago	F. H. Falls	OB	1,450	.....	.....	.....	1	7/1	9-36	125.00
Grant Hospital *	Chicago	E. L. Cornell	OB	504	.....	.....	.....	1	.....	9-60	50.00
Henrotin Hospital *	Chicago	H. E. Schmitz	OBG	1,350	19	11,717	338	6	7/1	9-36	75.00
Lewis Memorial Maternity Hospital *	Chicago	H. E. Schmitz	OBG	750	800	1,100	2,510	5	10/1	9-36	25.00
Mersey Hospital-Loyola University Clinics *	Chicago	L. E. Frankenthal Jr.	OBG	1,996	1,304	972	1,579	5	.....	.....	.....
Michael Reese Hospital *	Chicago	A. E. Kanter and A. F. Lash	OBG	.....	508	815	344	1	7/1	9	50.00
Mount Sinai Hospital *	Chicago	A. A. Curtis	Gyn	.....	835	.....	1,036	2	.....	9	.....
Passavant Memorial Hospital *	Chicago	N. S. Heaney	OBG	.....	3,014	982	.....	4	1/1, 7/1	9	50.00
Presbyterian Hospital *	Chicago	W. W. Gibbs and P. M. Santos	OBG	1,318	507	3,043	2,531	4	1/1	9	50.00
Provident Hospital *	Chicago	F. H. Falls	OB	810	.....	6,558	.....	3	.....	9-36	55.00
Research and Educational Hospitals *	Chicago	C. Geiger	OB	2,189	.....	.....	.....	1	.....	9	.....
St. Anne's Hospital *	Chicago	H. O. Jones	OBG	1,113	.....	1,897	.....	1	1/10	9	125.00
St. Joseph Hospital *	Chicago	H. E. Schmitz	OB	1,450	891	4,684	1,685	5	7/1	9-36	25.00
St. Luke's Hospital *	Chicago	W. J. Diekmann	OBG	324	.....	2,218	.....	1	7/1	9-12	50.00
St. Vincent's Infant and Maternity Hosp.	Chicago	G. C. Richardson	OB	4,332	661	25,344	10,074	6	.....	9-36	25.00
University of Chicago Clinics *	Chicago	M. E. Williams and B. E. Tucker	OBG	1,463	.....	.....	.....	1	.....	9	.....
Wesley Memorial Hospital *	Chicago	P. E. Lawler	OB	1,008	536	1,083	3,055	1	5/1	9-36	100.00
Women and Children's Hospital *	Chicago	W. A. Michael	OBG	2,149	.....	217	191	1	10/15	9	150.00
Little Company of Mary Hospital *	Evergreen Park, Ill.	J. W. Hofmann and H. F. Beckman	OBG	2,409	796	.....	.....	1	7/1	9-36	150.00
St. Francis Hospital *	Peoria, Ill.	H. F. Beckman	OB	872	783	3,872	3,609	2	4/1	9-24	50.00
Indianapolis City Hospital *	Indianapolis	H. F. Beckman	OB	1,798	.....	3,495	.....	1	5/15	9-36	33.00
Indiana University Medical Center *	Indianapolis	E. D. Plass	OBG	3,675	891	294	1,372	11	7/1	9-18	80.00
Methodist Hospital *	Indianapolis	R. A. Calkins	OBG	891	992	294	1,372	11	7/1	9	25.00
University Hospitals *	Iowa City, Ia.	R. A. West	OBG	1,300	.....	3,085	2,487	3	.....	9	.....
University of Kansas Hospitals *	Kansas City, Kan.	C. W. Hibbett	OBG	2,390	1,393	.....	.....	1	Varies	9	125.00
St. Francis Hospital *	Wichita, Kan.	A. Cair	OB	1,357	623	6,624	5,723	5	7/1	9	54.00
Louisville General Hospital *	Louisville, Ky.	A. Cair	OB	6,123	2,742	26,088	13,652	18	Varies	9-36	60.00
Charity Hospital of Louisiana *	New Orleans	H. Miller	Gyn	1,272	.....	2,818	.....	2	.....	9	50.00
Touro Infirmary *	New Orleans	L. H. Douglas	OB	1,041	.....	1,182	.....	2	.....	9	50.00
Baltimore City Hospitals *	Baltimore	I. A. Siegel	OB	1,430	.....	39	.....	5	7/1	9-12	80.00
Franklin Square Hospital *	Baltimore	N. J. Eastman	OB	2,870	.....	1,602	.....	4	10/1	9	100.00
Johns Hopkins Hospital *	Baltimore	R. W. TeLinde	Gyn	2,413	.....	14,792	.....	5	7/1	9-12	.....
Maryland General Hospital *	Baltimore	E. H. Klonan	OBG	.....	1,990	10,200	.....	5	7/1	9-12	.....
Maryland Hospital *	Baltimore	T. K. Galvin and E. P. Smith	OBG	775	432	204	17	2	.....	9	.....
Provident Hospital and Free Dispensary *	Baltimore	L. H. Douglass	OB	1,288	673	.....	.....	6	7/1	9-12	50.00
St. Joseph's Hospital *	Baltimore	T. K. Galvin	OBG	815	.....	1,557	.....	1	1/1	9-12	25.00
Sinal Hospital *	Baltimore	J. McE. Bergland	OB	1,415	635	2,135	926	3	7/1	9-36	50.00
Union Memorial Hospital *	Baltimore	L. H. Douglass	OB	1,744	.....	5,237	.....	2	7/1	9-12	50.00
University Hospital *	Baltimore	J. M. Hundley Jr.	Gyn	1,110	.....	2,105	.....	2	7/1	9-24	40.00
Boston City Hospital *	Boston	J. P. Cohen and F. L. Good	OBG	1,110	.....	2,105	.....	2	7/1	9-24	40.00
Boston Lying-In Hospital *	Boston	F. C. Irving	OB	.....	910	.....	5,642	3	7/1	9	50.00
Carney Hospital *	Boston	L. E. Phaneuf	OBG	2,299	2,128	6,216	4,460	2	7/1	9	50.00
Evangeline Booth Maternity Hospital and Home *	Boston	A. K. Paine	OB	3,138	.....	3,036	.....	6	1/1	9	100.00
Massachusetts Memorial Hospitals *	Boston	C. W. Sewall	OB	970	390	3,330	1,300	3	9/1	9	.....
Free Hospital for Women *	Brookline, Mass.	F. A. Pemberton	Gyn	802	.....	2,123	.....	2	3/15	9	85.33
University Hospital *	Ann Arbor, Mich.	N. F. Miller	OBG	1,250	.....	4,624	.....	2	7/1	9	.....
City of Detroit Receiving Hospital *	Detroit	H. A. Pearce	OBG	2,457	.....	11,337	.....	4	Varies	9-12	25.00
Florence Crittenton Hospital *	Detroit	G. P. Kumpman	OBG	920	738	2,160	4,441	4	.....	9	100.85
Grace Hospital *	Detroit	J. P. Pratt	OBG	1,032	.....	2,800	.....	2	7/1	9-48	172.50
Harper Hospital *	Detroit	W. F. Seeley	OBG	1,705	817	.....	.....	4	.....	9	125.00
Henry Ford Hospital *	Detroit	A. K. Northrop	OB	2,977	1,765	90	893	3	7/1	9-36	125.00
Herman Kiefer Hospital *	Detroit	I. S. Gellert	OBG	2,454	837	.....	.....	3	.....	9	175.00
Mount Carmel Mercy Hospital *	Detroit	V. J. Turcotte	OBG	1,567	776	7,650	18,405	4	7/1	9-24	290.00
Providence Hospital *	Detroit	H. M. Nelson and L. E. Daniels	OBG	856	.....	.....	.....	1	.....	9-48	140.00
St. Mary's Hospital *	Detroit	J. R. Manley	OB	3,341	1,591	.....	.....	4	.....	9-36	150.00
Woman's Hospital *	Detroit	L. A. Lunn	OBG	1,959	1,096	123	317	3	Varies	.....	.....
St. Mary's Hospital *	Duluth, Minn.	J. L. McKelvey	OBG	2,645	1,135	.....	.....	6	.....	9-13	100.00
Minneapolis General Hospital *	Minneapolis	R. D. Mussey	OBG	1,513	.....	2,95	.....	1	7/1	9	75.00
St. Mary's Hospital *	Minneapolis	A. G. Schulze	OBG	290	297	769	932	2	7/1	9-13	91.50
University Hospitals *	Minneapolis	E. C. Hartley and R. Countryman	OBG	2,123	.....	.....	.....	2	.....	9	.....
Mayo Foundation	Rochester, Minn.	T. H. Aschman	OBG	311	501	888	2,987	3	.....	9	.....
Acker Hospital *	St. Paul	M. Meyerhardt and S. Soule	OBG	200	205	579	1,012	1	.....	9	.....
Charles T. Miller Hospital *	St. Paul	W. M. Allen	OBG	1,417	674	2,189	1,051	2	7/1	9	.....
Kansas City General Hospital *	Kansas City, Mo.	W. M. Allen	OBG	514	597	2,155	1,702	5	7/1	9-36	50.00
Homer G. Phillips Hospital *	St. Louis	C. H. O'Keefe	OBG	1,556	894	1,025	1,545	5	1/1	9	50.00
Jewish Hospital *	St. Louis	W. H. Voigt	OBG	928	734	698	769	2	7/1	9	50.00
St. Louis City Hospital *	St. Louis	M. E. Grier	OBG	1,225	1,034	1,191	1,292	3	7/1	9	80.00
St. Louis Maternity Hospital *	St. Louis	.....	OBG	2,475	.....	.....	.....	7	7/1	9	.....
St. Luke's Hospital *	St. Louis	.....	OBG	796	678	.....	.....	1	7/1	9	75.00
St. Mary's Group of Hospitals *	St. Louis	.....	OBG	2,463	1,291	9,214	4,267	6	7/1	9	25.00
Crichton Memorial St. Joseph's Hosp.	Omaha	.....	OBG	1,695	1,445	1,044	1,044	2	7/1	9-24	100.00
University of Nebraska Hospital *	Omaha	.....	OBG	262	255	.....	.....	1	.....	9	.....
Cooper Hospital *	Camden, N. J.	A. B. Davis	OB	2,551	.....	8,413	.....	2	7/1	9-36	60.00
Jersey City Hospital *	Jersey City, N. J.	F. C. Holden	Gyn	.....	1,128	.....	2,977	4	Varies	9-12	25.00
Margaret Hague Maternity Hospital *	Jersey City, N. J.	A. J. Wallingford	Gyn	7,574	.....	17,701	.....	14	.....	9-36	50.00
Albany Hospital *	Albany, N. Y.	G. E. Lochner	OB	.....	2,483	.....	799	3	7/1	9-12	25.00
Anthony N. Brady Maternity Home	Albany, N. Y.	A. Koplowitz	OB	1,779	.....	1,958	.....	2	10/1	9-36	250.00
Beth El Hospital *	Brooklyn	Wm. S. Smith	OBG	1,751	.....	2,091	.....	2	1/1	9-12	100.00
Brooklyn Hospital *	Brooklyn	S. Lubin	OB	1,441	498	2,178	1,274	2	.....	9	.....
Cumberland Hospital *	Brooklyn	.....	OB	1,015	.....	4,229	.....	2	7/1	9-12	50.00

11. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated *		Outpatient Visits		Asst. Res. and Residencies *	Beginning of Service (1945)	Length of Ser- vice (Months)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
Greenpoint Hospital **	Brooklyn	T. S. Welton	OBG	701	482	2,080	2,455	4	4/1, 7/1	9	\$110.00
Jewish Hospital **	Brooklyn		OBG	4,311	1,147	4,317	1,989	3	1/1, 7/1	9-18	25.00
Kings County Hospital **	Brooklyn	C. Gordon and									
Long Island College Hospital **	Brooklyn	R. Garlick	OBG	3,024	2,829	9,992	4,207	4	7/1	9-18	110.00
Methodist Hospital **	Brooklyn	A. C. Beck	OBG	1,586	789	4,944	1,315	3	7/1	9-36	25.00
Norwegian Lutheran Deaconesses' Home and Hospital **	Brooklyn	G. H. Davis	OBG	1,945	637 ^b			3		9	
		B. A. Harris and									
St. Mary's Hospital **	Brooklyn	J. B. Dowd	OB	1,028		1,826		1	10/1	9	
Buffalo General Hospital **	Buffalo	H. Lorber	OBG	1,251	452	2,979	472	2	7/1	9-27	60.00
Children's Hospital *	Buffalo	C. L. Randall	OBG	771	1,161	1,303	1,179	3	7/1	9-12	25.00
Edward J. Meyer Memorial Hospital **	Buffalo	L. A. Siegel	OB	1,942		867		1	7/1	9	50.00
Millard Fillmore Hospital *	Buffalo	E. G. Winkler	OBG	646	570	1,951	1,282	3	7/1	9-36	50.00
Queens General Hospital *	Buffalo	L. F. McLean	OB	3,076				2	7/1	9-12	100.00
Bellevue Hospital, Div. III—N. Y. Univ. *	Jamaica, N. Y.	E. A. Flemming	OBG	1,076	692	3,935	1,886	1	7/1	9-21	110.00
Beth Israel Hospital **	New York City	H. C. Taylor Jr.	OBG	2,059	2,284	7,991	6,155	11	Varies	9-36	25.00
		H. C. Falk and									
Flower and Fifth Avenue Hospitals *	New York City	H. Lorber	Gyn		752		4,507	2	7/1	9	50.00
Fordham Hospital *	New York City	L. S. Loizeaux	OBG	1,573	1,247	2,712	515	2		9-12	100.00
French Hospital *	New York City	A. C. Butts	OB	682				1	7/1	9-12	110.00
Harlem Hospital *	New York City	F. A. Kassebaum	OB	1,484				1		9	
		H. C. Falk	OB	2,411				2	7/1	9	50.00
Lenox Hill Hospital **	New York City	R. L. McCready and R. Van Etten	Gyn		1,406 ^b			2	6/1, 7/1	9	50.00
Lincoln Hospital **	New York City	H. Ingraham	OB	1,177				1		9	25.00
Lying-In Hospital *	New York City		OBG	1,702	813	8,404	2,529	3	1/1, 7/1	9-24	110.00
Metropolitan	New York City		OBG	(See New York Hospital)							
Morrisania Ch	New York City		OBG	800	506	5,924	3,394	2		9	
Mount Sinai Hospital **	New York City		OB	1,014		3,583		2	7/1	9	100.00
New York City Hospital *	New York City		Gyn		834 ^b			3	1/1, 7/1	9-12	50.00
		J. V. Ricci and K. Johnson									
New York Foundling Hospital	New York City	J. P. Hennessy	OBG	477	564	3,836	2,489	2	7/1	9	60.00
New York Hospital *	New York City	H. J. Stander	OB	1,077		4,206		2		9	50.00
New York Infirmary for Women and Chil- dren **	New York City		OBG	4,127	1,426	22,407	10,630	16	7/1	9-60	25.00
New York Polyclinic Medical School and Hospital *	New York City	W. Ragland	OB	1,231		4,213		1	4/1	9-12	75.00
			OB	1,021		2,154		1	7/1	9	128.25
			Gyn		840		2,884	1		9	25.00
New York Post-Graduate Medical School and Hospital **	New York City	W. Dannreuther	Gyn		603		12,070	2	10/1	9-24	30.00
Presbyterian Hospital *	New York City	B. P. Watson	OBG	3,378	1,417	19,767	12,468	12		9	50.00
Roosevelt Hospital *	New York City	T. C. Peighal and H. C. Taylor Jr.	Gyn		740		2,167	1	7/1	9	
St. Vincent's Hospital **	New York City	J. F. McGrath	OBG	944	1,983	2,087	1,406	2	7/1	9-18	25.00
Sloane Hospital for Women	New York City			(See Presbyterian Hospital)							
Woman's Hospital *	New York City	A. H. Aldridge	OBG	2,501	1,997	8,548	15,432	11	1/1, 4/1	9	10.00
Strong Memorial and Rochester Municipal Hospitals *	Rochester, N. Y.	K. M. Wilson	OBG	1,586	1,167	2,971	2,306	6	7/1	9-48	41.66
General Hospital *	Syracuse, N. Y.	E. C. Hughes	OB	1,133				3		9	
Syracuse Memorial Hospital *	Syracuse, N. Y.	N. P. Sears	Gyn	1,093				3	7/1	9-12	
		W. Z. Bradford	Gyn		842			3	7/1	9-12	
Charlotte Memorial Hospital **	Charlotte, N. C.	B. Carter	OBG	892	700	2,752	65	2	1/1	9-36	75.00
Duke Hospital *	Durham, N. C.	F. R. Lock	OBG	1,485	953	13,361	8,722	6		9	83.33
North Carolina Baptist Hospital **	Winston-Salem, N. C.		OBG	1,275	510	1,547	1,206	4	7/1	9	41.66
City Hospital *	Akron, O.	L. E. Leavenworth	OB	3,101				2		9	100.00
Mercy Hospital *	Canton, O.	H. L. Woodward	OBG	2,093	282			2	7/1	9	100.00
Cincinnati General Hospital *	Cincinnati, O.	A. H. Bill	OB	2,152		2,272		4	7/1	9-24	
City Hospital *	Cleveland, O.	E. D. Saunders	OB	706		1,208		4		9	25.00
Fairview Park Hospital *	Cleveland, O.	M. Garber	OB	1,929		44		1	8/1	9	150.00
Mount Sinai Hospital *	Cleveland, O.	C. T. Hemmings	OBG	1,363		144		1	7/1	9-12	100.00
St. Luke's Hospital *	Cleveland, O.	A. H. Bill	OB	1,997	511	1,629	1,262	4	7/1	9	50.00
University Hospitals *	Cleveland, O.	A. H. Bill	Gyn	4,114		12,266		5	7/1	9	25.00
		P. J. Reel	Gyn		1,804		5,386	1	7/1	9-12	50.00
		W. D. Inglis	OB		566		977	1	7/1	9-12	100.00
		E. C. Mohr	OBG	2,699		180		3	7/1	9-18	60.00
		R. C. King	OBG	2,449	1,212	8	323	3		9	
		R. C. King	OB	120	160	91	111	1		9	
		G. Penick and J. B. Eskridge	OBG	1,871	779			1		9	
			OB	1,267		207		4		9	
			OBG	607	441	3,715	3,413	4		9-18	75.00
University of Oregon Medical School Hos- pitals and Clinics **	Portland, Ore.	R. B. Watkins	OBG	360	302	1,531	1,115	3	7/1	9-18	75.00
George F. Geisinger Memorial Hospital *	Danville, Pa.	R. E. Nicodemus	OB	793		5,800		2	7/1	9	75.00
Graduate Hospital of the University of Pennsylvania *	Philadelphia	W. R. Nicholson	Gyn		487		1,127	1	7/1	9-24	
Hahnemann Hospital *	Philadelphia	E. B. Craig and N. F. Paxson	OBG	306	311	6,325	1,832	2	7/1	9-18	50.00
Hosp. of the Protestant Episcopal Church **	Philadelphia	E. A. Schumann	OBG	1,774	460 ^b	6,399 ^b	1,584 ^b	1	7/1	9	100.00
Hosp. of the University of Pennsylvania **	Philadelphia	F. L. Payne	OBG	1,517	1,623	8,773	4,289	3	8/1	9-36	
Hospital of the Woman's Medical College of Pennsylvania *	Philadelphia	M. Sturgis	Gyn		696			1	4/1	9-36	50.00
Jefferson Medical College Hospital *	Philadelphia	L. C. Scheffey and N. W. Vaux	OBG	1,808	1,766	9,421	4,414	2	1/1	9	25.00
			OBG	1,050	554 ^b			1		9	
Mount Sinai Hospital **	Philadelphia		OBG	2,730	1,211	10,218	1,848	3		9	92.33
Pennsylvania Hospital *	Philadelphia		OBG	1,699	1,143			2	7/1	9	52.00
Philadelphia General Hospital *	Philadelphia		OBG		1,021	3,592	1,347	3	7/1	9-12	50.00
Temple University Hospital *	Philadelphia		OB	1,478		4,183		1	7/1	9-12	50.00
Woman's Hospital *	Philadelphia		Gyn		537		1,679	1	7/1	9-12	50.00
Elizabeth Steel Magee Hospital *	Pittsburgh	B. Z. Cashman and C. E. Ziegler	OBG	4,007	1,880	4,785	1,410	8	7/1	9	41.66
Montefiore Hospital *	Pittsburgh	C. J. Barone	OBG	1,250		1,539		1		9	
St. Francis Hospital *	Pittsburgh	J. H. Carroll	OB	1,449		405		3		9-36	80.00
		B. Z. Cashman	Gyn		849		576	4	10/1	9-36	80.00
Roper Hospital **	Charleston, S. C.	R. L. McCready and L. A. Wilson	OBG	1,695	498	7,947	1,785	4	7/1	9-27	50.00
Baroness Erlanger Hospital *	Chattanooga, Tenn.	D. N. Williams	OB	2,421		2,872		2		9	
John Gaston Hospital *	Memphis, Tenn.	W. T. Pride	OB	2,469		14,876		2		9	
			Gyn		744		5,393	1		9	

11. OBSTETRICS AND GYNECOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated *		Outpatient Visits		Asst. Res. and Residencies *	Beginning of Service (1915)	Length of Ser- vice (Months)	Beginning Stipend (Month)
				OB	Gyn	OB	Gyn				
George W. Hubbard Hospital of Meharry	Nashville, Tenn.	R. S. Duke	OBG	376	251	1,757	502	3	1/1	9	\$75.00
Medical College *	Nashville, Tenn.	C. W. Black	OBG	986	549	4,633	4,132	4	.....	9	.....
Nashville General Hospital *	Nashville, Tenn.	L. E. Burch	OBG	1,344	479	5,810	4,773	4	7/1	9	.....
Vanderbilt University Hospital *	Dallas, Tex.	W. Bourland	OB	3,927	.....	1,864	.....	.....	.....	9	.....
Baylor University Hospital *	Dallas, Tex.	W. Menger	OB	1,352	.....	.....	.....	.....	.....	9	.....
Parkland Hospital *	Galveston, Tex.	W. R. Cooke	OBG	1,040	755	.....	9,127	3	Varies	9	50.00
John Sealy Hospital *	Houston, Tex.	E. W. Bertner	OBG	924	952	2,182	2,146	3	1/1	9-36	50.00
Hermann Hospital *	Houston, Tex.	G. S. Ham	OB	806	.....	1,710	.....	1	.....	9	.....
Methodist Hospital *	Houston, Tex.	G. S. Ham	OB	6,546	.....	857	.....	.....	2/1	9-36	150.00
St. Joseph's Infirmary	Charlottesville, Va.	T. J. Williams	OBG	1,083	4,476	4,962	.....	.....	7/1	9	15.00
University of Virginia Hospital *	Richmond, Va.	H. H. Ware	OB	2,778	.....	7,522	.....	3	7/1	9	37.50
Medical College of Virginia, Hosp. Div. *	Richmond, Va.	E. B. Brookbank	OB	2,522	.....	262	.....	.....	7/1	9-36	100.00
Providence Hospital *	.....	R. E. Gillett	OBG	590	235	1,898	2,512	1	.....	9	.....
Northern Permanente	.....	J. W. Harris	OB	1,437	.....	.....	.....	1	.....	9	100.00
St. Mary's Hospital *	.....	H. J. Olson	OBG	1,290	.....	6,197	.....	4	4/1	9-36	25.00
State of Wisconsin Gen	.....	.....	OBG	394	566	924	1,057	4	7/1	9-36	65.32
Milwaukee County Ho	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Hospitals, 195; Assistant Residencies and Residencies, 656

12. OPHTHALMOLOGY AND OTOLARYNGOLOGY

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated *		Outpatient Visits		Asst. Res. and Residencies *	Beginning of Service (1915)	Length of Ser- vice (Months)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol				
Children's Hospital *	Los Angeles	J. M. Brown	Otol	.....	1,661	.....	1,625	1	.....	9	.....
Los Angeles County Hospital *	Los Angeles	W. Boyce, R. Irvine	Oph	600	.....	9,147	.....	.....	Varies	9-24	\$157.20
White Memorial Hospital *	Los Angeles	P. Viale	Otol	.....	1,546	.....	6,644	1	Varies	9-24	157.20
San Diego County General Hospital *	San Diego, Calif.	W. A. Boyce	Oph	311	.....	7,212	.....	1	.....	9	.....
Children's Hospital *	San Francisco	B. N. Colver	Otol	.....	1,188	.....	8,891	1	7/1	9-12	116.00
Green's Eye Hospital	San Francisco	J. J. Prendergast and C. W. Brown	OpOt	433	.....	2,894	.....	1	.....	9-12	.....
San Francisco Hospital *	San Francisco	L. Abbott	OpOt	495 ^b	.....	5,779 ^b	.....	.....	.....	9	.....
Stanford University Hospitals *	San Francisco	M. I. Green	Oph	1,079	.....	13,912	.....	.....	7/1	9-24	100.00
University of California Hospital *	San Francisco	L. Z. Fishman	Otol	.....	238	.....	1,474	.....	.....	9	.....
Colorado General Hospital *	Denver, Colo.	H. Barkan	OpOt	423	.....	8,455	.....	.....	Varies	9	115.00
New Haven Hospital *	New Haven, Conn.	J. A. Bacher	Oph	629	.....	8,412	.....	.....	7/1	9-18	50.00
Episcopal Eye, Ear and Throat Hospital	Washington, D. C.	F. C. Cordes	Oph	.....	904	.....	8,112	.....	7/1	9-18	50.00
Gallinger Municipal Hospital *	Washington, D. C.	W. B. Smith	Otol	524	.....	9,813	.....	.....	Varies	9-12	50.00
Grady Memorial Hospital *	Atlanta, Ga.	F. C. Cordes	Oph	.....	441	.....	4,141	1	Varies	9-12	50.00
Cook County Hospital *	Chicago	J. Frazer	Oph	95	.....	6,134	.....	.....	7/1	9-36	70.00
Illinois Eye and Ear Infirmary	Chicago	L. S. Greene	Otol	.....	800	.....	5,025	3	7/1	9-12	.....
Mersey Hospital, Loyola University Clinics *	Chicago	E. G. Breeding	Oph	1,476	.....	14,231	.....	4	1/1	9-16	25.00
Michael Reese Hospital *	Chicago	G. E. Clay and W. C. Warren	OpOt	.....	427	.....	4,758	2	1/1	9-12	25.00
Passavant Memorial Hospital *	Chicago	W. Moneroff	Oph	455	.....	2,941	.....	1	7/1	9	.....
Presbyterian Hospital *	Chicago	J. Lifschutz	Otol	318	867	9,315	7,650	6	.....	9	20.00
Provident Hospital *	Chicago	H. S. Gradle	Oph	490	.....	4,291	.....	5	1/1, 7/1	9-36	25.00
Research and Educational Hospitals *	Chicago	H. S. Gradle	Otol	.....	2,758	.....	7,035	5	1/1, 7/1	9-36	25.00
St. Luke's Hospital *	Chicago	H. S. Gradle	Otol	1,726	.....	38,203	.....	18	7/1	9-36	.....
University of Chicago Clinics *	Chicago	R. W. Kerwin	OpOt	.....	982	.....	13,454	15	7/1	9-36	.....
Wesley Memorial Hospital *	Indianapolis	S. J. Meyer	Oph	344	1,498	205	158	1	7/1	9-18	25.00
Indiana University Medical Center *	Indianapolis	S. J. Pearlman	Otol	523	.....	3,544	.....	1	.....	9-36	50.00
Louisville General Hospital *	Kansas City, Kan.	J. F. Delph	Otol	.....	1,823	.....	1,569	.....	.....	9-36	50.00
Charity Hospital of Louisiana *	Louisville, Ky.	E. V. L. Brown	Oph	597	.....	657	.....	.....	.....	9	.....
Eye, Ear, Nose and Throat Hospital	New Orleans	D. B. Hayden	Oph	.....	291	.....	990	1	.....	9	.....
Touro Infirmary *	New Orleans	C. L. Forney	OpOt	301	.....	6,104	.....	.....	1/1, 7/1	9	50.00
Baltimore Eye, Ear and Throat Charity	Baltimore	H. Beard	Oph	.....	1,135	.....	4,125	.....	1/1, 7/1	9	50.00
Johns Hopkins Hospital *	Baltimore	A. R. Hollender	Otol	70	323	7,295	2,160	1	1/1	9	50.00
University Hospital *	Baltimore	F. E. Brawley and H. R. Lyons	OpOt	215	.....	6,282	.....	2	.....	9-24	55.00
Wesley Memorial Hospital *	Chicago	A. Krause	Oph	.....	467	.....	6,625	1	.....	9-24	55.00
Indianapolis City Hospital *	Indianapolis	J. R. Lindsay	Otol	.....	.....	.....	.....	.....	.....	.....	.....
Indiana University Medical Center *	Indianapolis	W. A. Mann	Oph	165	.....	.....	.....	.....	.....	.....	.....
University Hospitals *	Iowa City, Ia.	B. J. Larkin	Oph	155	.....	2,117	.....	1	4/1	9-24	30.00
University of Kansas Hospitals *	Kansas City, Kan.	W. F. Molt	Otol	.....	54	.....	2,795	1	4/1	9-24	30.00
Louisville General Hospital *	Louisville, Ky.	R. L. Masters	Oph	255	.....	2,656	.....	2	.....	9-36	30.00
Charity Hospital of Louisiana *	New Orleans	C. McCaskey	Otol	.....	573	.....	1,163	.....	.....	9-36	30.00
Eye, Ear, Nose and Throat Hospital	New Orleans	C. S. O'Brien	Oph	1,116	.....	4,746	.....	8	7/1	9	25.00
Touro Infirmary *	New Orleans	D. M. Llerle	Otol	.....	1,911	.....	3,969	9	7/1	9	25.00
Baltimore Eye, Ear and Throat Charity	Baltimore	S. E. Roberts	Otol	.....	963	.....	2,214	.....	.....	9-26	50.00
Johns Hopkins Hospital *	Baltimore	S. F. Bungardner	OpOt	114	220	2,405	2,204	2	7/1	9	51.00
University Hospital *	Baltimore	W. R. Buffington	Oph	1,020	1,32	11,767	13,963	16	Varies	9-26	60.00
Wesley Memorial Hospital *	Indianapolis	F. E. LeJeune	Otol	.....	16,413	.....	.....	.....	.....	9-24	.....
Indiana University Medical Center *	Indianapolis	A. J. McComiskey	OpOt	34	1,659	800	1,551	2	.....	9	50.00
Louisville General Hospital *	Louisville, Ky.	A. C. Woods	OpOt	.....	3,541	11,104	8,690	4	1/1, 7/1	9-24	10.00
Charity Hospital of Louisiana *	New Orleans	S. J. Crowe	Oph	1,489	.....	16,608	.....	10	7/1	9	.....
Eye, Ear, Nose and Throat Hospital	New Orleans	C. Clapp and E. Looper	OpOt	.....	1,118	.....	10,709	5	7/1	9	.....
Touro Infirmary *	New Orleans	J. J. Regan and E. J. Monahan	OpOt	13	1,147	4,291	2,052	1	7/1	9	75.00
Baltimore Eye, Ear and Throat Charity	Baltimore	P. A. Chandler	Otol	.....	631	.....	2,831	1	.....	9	.....
Johns Hopkins Hospital *	Baltimore	L. A. Schall	Oph	592	1,712	15,233	12,331	2	7/1	9	50.00
University Hospital *	Baltimore	G. Berry	Otol	.....	.....	.....	.....	.....	Varies	9-24	.....
Wesley Memorial Hospital *	Indianapolis	F. B. Frailek	Oph	2,840	.....	40,707	.....	6	Varies	9-24	.....
Indiana University Medical Center *	Indianapolis	A. A. Furstenberg	Otol	.....	3,054	30,676	.....	7	Varies	9-24	41.67
Louisville General Hospital *	Louisville, Ky.	.....	.....	.....	1,935	935	.....	.....	7/1	9-24	41.67
Charity Hospital of Louisiana *	New Orleans	.....	.....	615	.....	11,779	.....	6	Varies	9	.....
Eye, Ear, Nose and Throat Hospital	New Orleans	.....	.....	.....	770	10,106	.....	4	Varies	9	100.00

Numerical and other references will be found on page 405.

12. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated ^a		Outpatient Visits		Asst Res. and Residents ^a	Beginning of Service (1945)	Length of Ser- vice (Months)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol				
City of Detroit Receiving Hospital **	Detroit	P Heath and J M Robb	OpOt	800		11,827		4	7/1	9 18	\$140 58
Grace Hospital *	Detroit	N I Bentley	OpOt	148	1,800	1,420	821	2	7/1	9 36	120 00
Harper Hospital **	Detroit	P Heath and J M Robb	OpOt	817	2,882			4		9	
Henry Ford Hospital *	Detroit	E L Whitney	Oph	375		15,047		3	7/1	9 36	170 00
Shurly Hospital *	Detroit	J L Dill	Otol		1,219		16,377	3	7/1	9 36	170 00
		W J Walinger and B R Shurly	OpOt	84	222	5,760	3,248	3		9	
Floise Hospital and Infirmary **	Floise, Mich	R Beattie	OpOt	257		1,009		2	7/1	9 12	160 00
Minneapolis General Hospital **	Minneapolis	W K Haven	OpOt	381		2,600	1,880	2	7/1	9 18	91 00
University Hospitals **	Minneapolis	E Hanon	Oph	281		4,002		2	7/1	9 36	91 00
		L R Boles	Otol		274		3,600	2	7/1	9 36	91 00
Mayo Foundation	Rochester, Minn	W L Benedict	Oph	(See page 400)				8		9	
		H I Little	Otol					10		9	
Ancker Hospital *	St Paul	R O Leavenworth	OpOt	86	347	3,477	2,422	2	7/1	9 18	130 00
Charles T Miller Hospital *	St Paul	F F Burch	Oph	937		3,000		2	7/1	9	
Children's Mercy Hospital *	Kansas City, Mo	R J Curdy and V W McCarthy	OpOt	42	310	1,400	978	1	7/1	9 24	50 00
Kansas City General Hospital *	Kansas City, Mo	A N Lemole and A E Eubank	OpOt	75	210	1,646	1,678	2		9 24	50 00
Barnes Hospital **	St Louis	I T Post	Oph	1,027		13,381		5	7/1	6 36	20 00
Homer G Phillips Hospital *	St Louis	T E Walsh	Otol		1,600		11,182	8	7/1	9 24	100 00
		W H Meinberg and T Walsh	OpOt	174	700	2,431	2,208	3	1/1	9	80 00
Jewish Hospital **	St Louis	S B Westlake	Otol		129		661	1		9	70 00
St Louis City Hospital **	St Louis	L T Post	Oph	190		4,147		2	7/1	9	80 00
		A C Stutsman	Otol		221		2,311	2	7/1	9	80 00
St Mary's Group of Hospitals *	St Louis	W H Luedde	Oph	160		5,408		3	7/1 Every 9 mos	9 30	30 00
		W E Sauer	Otol		1,030		4,408	3	7/1 Every 9 mos	9 30	30 00
Jersey City Hospital **	Jersey City, N J	J A Brophy and M G Borrone	OpOt	472	1,606	1,388	1,110	6	Varies	9 24	30 00
Newark City Hospital *	Newark, N J		Otol					1		9	
Newark Eye and Ear Infirmary	Newark, N J	R H Rogers and W M Brien	OpOt	744	6,371	1,716	4,806	3		9+	
Albany Hospital **	Albany, N Y	H K Tebbutt Jr	Otol		980		1,067	2	7/1	9 12	20 00
Brooklyn Eye and Ear Hospital	Brooklyn	I N Evans	Oph	2 126		40,006		6		9 24	
		W S Shattuck	Otol		4,446		36,870	8	Varies	9 24	
Jewish Hospital **	Brooklyn	L Berger	Otol		564		3,476	1		9 12	20 00
Kings County Hospital **	Brooklyn	W Mochle	Oph	382		7,871		2	7/1	9 18	110 00
		M C Myerson	Otol		1 181		5,499	3	7/1	9 18	110 00
Long Island College Hospital **	Brooklyn	I N Evans	Oph	129		474		5	7/1	9 24	20 00
		R L Moorhead	Otol		3 804		2 162	2	7/1	9 12	50 00
Buffalo General Hospital *	Buffalo	I F Fairbairn	Otol		709		600	2	7/1	9 24	50 00
Edward J Meyer Memorial Hospital **	Buffalo	H J Koenig	Oph	70		2,311		3	7/1	9 36	50 00
		I E Bozer	Otol		78		1,602	1	7/1	9 24	110 00
Queens General Hospital **	Jamaica, N Y	W G Frey Jr	Oph	190		4,608		2	7/1	9 24	110 00
		M S Bender	Otol		716		2,477	2	7/1	9	100 00
New Rochelle Hospital *	New Rochelle, N Y	A L Beck	OpOt	503	1,962		1,173	6	Varies	9 24	20 00
Bellevue Hospital, Div III—N Y Univ **	New York City	D B Kirby	Oph		2 709	15,742	10,571	6	Varies	9 24	20 00
		I Kelly	Otol		187		1,361	2		9 12	100 00
Flower and Fifth Avenue Hospitals **	New York City	J A W Hetrick	Oph	38				2	7/1	9 12	50 00
Goldwater Memorial Hospital **	New York City	J W Smith	OpOt	390	1 002	15 720	13 863	3		9	
Harlem Eye and Ear Hospital	New York City		Otol					1	7/1	9 21	50 00
Harlem Hospital **	New York City	H J Burman	Oph	2 361		66 089		7	Varies	9 21	
Manhattan Eye, Ear and Throat Hospital *	New York City		Otol		8,897		51,124	8	Varies	9 24	
			Oph	115	300		3,043	1		9 12	50 00
Metropolitan Hospital **	New York City	C A Turtz	Otol					2	7/1	9 24	50 00
Mount Sinai Hospital **	New York City	J A W Hetrick	Oph					2	7/1	9 24	50 00
			Otol					2	7/1	9 24	50 00
New York City Hospital *	New York City	H B Judd	Otol		402		2,742	1	7/1	9	110 00
New York Eye and Ear Infirmary *	New York City		Oph	2 800		52 222		12	1/1, 4/1	9 24	
			Otol		3,013		30,709	12	7/1, 10/1	9 24	
New York Polyclinic Medical School and Hospital *	New York City		OpOt	170	1,308	3 597	7,238	4	7/1	9	20 00
New York Post Graduate Medical School and Hospital *	New York City	J W White	Oph	291		6 906		2	1/1 7/1	9 24	10 00
		A Nilsen	Otol		660		7,394	4	1/1	9 24	10 00
Presbyterian Hospital **	New York City	J M Dunnington	Oph	2 600		27,780		6		9	
		J D Kernan	Otol		1,802		20 348	6		9 24	
Roosevelt Hospital *	New York City	C A Harper	Otol		671		3,134	2		9 18	50 00
St Luke's Hospital *	New York City	W G Frey	Oph	143		8 244		1	Varies	9 36	50 00
		T W Fowlkes	Otol		1,093		7,474	3	Varies	9 36	50 00
Rochester General Hospital **	Rochester, N Y	E W Kennedy and C S Nash	OpOt	111	860	714	2,570	2		9 36	70 00
Strong Memorial and Rochester Municipal Hospitals **	Rochester, N Y	J F Gipner	Oph	399		5 248		2	7/1	9 24	66 66
		C A Healy	Otol		1 903		4 270	2	7/1	9 24	41 66
		M C Myerson	Otol		9 630			2	1/1, 7/1	9	110 00
Sea View Hospital *	Staten Island, N Y	M G Brown	Otol		1,874		3 102	1		9	
Syracuse University Medical Center *	Syracuse, N Y	L D Redway	Oph	72		3 820		2		9	70 00
Grasslands Hospital **	Valhalla, N Y	M T Smith	Otol		208		1,710	2		9	70 00
Duke Hospital **	Durham, N C	W B Anderson and W W Farlie	OpOt	290	567	3,416	4,176	10	Every 9 mos	9	83 33
			Oph	200		4,712		2	7/1	9 24	
Cincinnati General Hospital *	Cincinnati		Otol		812		3 260	2	7/1	9 24	
City Hospital **	Cleveland	G L Miller	Oph	161		2 464		1		9	70 00
		C W Engler	Otol		249		1,419	2		9+	100 00
Cleveland Clinic Foundation Hospital *	Cleveland	P Moore	Otol		540			4	7/1	9 48	50 00
St Luke's Hospital *	Cleveland	T W Thoburn	Otol		1,559		1 091	2		9	
University Hospitals **	Cleveland	A B Bruner	Oph	666		4,031		2	7/1	9	
		C Pitkin	Otol		1,500		4,397	2	7/1	9 12	50 00
Starling Loving University Hospital **	Columbus, Ohio	A D Frost	Oph	207		1 830		2	7/1	9 12	50 00
		C S Beatty	Otol		301		1,100	2	7/1	9 12	50 00
University Hospitals *	Oklahoma City, Okla	L Westfall and T G Walls	OpOt	242	403	2 712	2,119	2	9/1	9 18	70 00
University of Oregon Medical School Hos- pitals and Clinics **	Portland, Ore	F A Kieble	Oph	100		3 543		2	7/1	9	75 00
		R Fenton	Otol		300		3,002	2	7/1	9	75 00
		C E Jacobs	Oph	187		6,182		1	7/1	9	75 00
George F Giesinger Memorial Hospital **	Danville, Pa	C W Davison	Otol		727		7,233	1	7/1	9	75 00

12. OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated ^a		Outpatient Visits		Asst. Res. and Residencies ^b	Beginning of Service (1915)	Length of Ser- vice (Months)	Beginning Stipend (Month)
				Oph	Otol	Oph	Otol				
Graduate Hospital of the University of Pennsylvania *	Philadelphia	E. Spaeth	Oph	353	.....	3,358	.....	1	7/1	9-24	.....
		R. Butler	Otol	.....	1,601	.....	3,901	2	7/1	9-24	.....
Hosp. of the Protestant Episcopal Church **	Philadelphia	O. C. Hirst	Otol	.....	570 ^b	.....	2,615 ^b	1	.....	9	.....
Hospital of the Univ. of Pennsylvania **	Philadelphia	F. H. Adler	Oph	573	.....	5,317	.....	1	7/1	9-36	.....
Jefferson Medical College Hospital *	Philadelphia	H. J. Williams and L. H. Clerf.	Otol	.....	1,472	.....	8,565	1	1/1	9	\$25.00
Philadelphia General Hospital **	Philadelphia	.....	Oph	119	.....	.....	.....	1	Varies	9	93.33
Temple University Hospital **	Philadelphia	.....	Oph	299	.....	3,306	.....	2	7/1	9-36	52.00
		.....	Otol	.....	394	.....	1,630	2	7/1	9-36	52.00
Wills Hospital *	Philadelphia	F. C. Parker	Oph	4,005	.....	25,370	.....	9	Varies	9-18	.....
Eye, Ear, Nose and Throat Hospital *	Pittsburgh	W. E. Carson and J. H. McCready	OpOt	.....	4,229	.....	10,522	4	1/1, 7/1	9-18	40.00
Mercy Hospital **	.....	W. L. Allison	Otol	.....	1,433	.....	.....	1	7/1	9-36	.....
Knoxville General Hospital *	.....	E. C. Ellett and L. Levy	OpOt	40	353	.....	559	1	.....	9	.....
Memphis Eye, Ear, Nose and	.....	.....	OpOt	3,175	.....	7,205	.....	4	1/1	9-18	25.00
Nashville General Hospital **	Nashville, Tenn.	J. Gordon Jr.	OpOt	324	.....	3,416	.....	1	.....	9	.....
Vanderbilt University Hospital **	Nashville, Tenn.	.....	Otol	.....	.....	.....	.....	1	.....	9	.....
Parkland Hospital **	Dallas, Tex.	G. Jones and J. D. Singleton	OpOt	.....	.....	.....	.....	1	.....	9	50.00
John Sealy Hospital **	Galveston	M. Robison	Otol	.....	402	.....	2,611	2	Varies	9	50.00
Jefferson Davis Hospital *	Houston, Tex.	R. Daily	Oph	284	.....	2,427	.....	1	3/1	9	50.00
		J. F. Gamble	Otol	.....	402	.....	721	1	7/1	9	50.00
University of Virginia Hospital **	Charlottesville, Va.	E. Burton and F. D. Woodward	OpOt	187	1,067	3,083	3,126	11	1/1	9	25.00
Medical College of Virginia, Hosp. Div. **	Richmond, Va.	R. H. Courtney and P. Pastore	OpOt	251	767	4,471	3,384	4	7/1	9	37.50
Gill-Mem. Eye, Ear and Throat Hospital *	Roanoke, Va.	E. G. Gill	OpOt	158	735	6,501	7,410	2	.....	9-24	150.00
King County Hospital *	Seattle	A. G. Hanson and J. A. Weber	OpOt	.....	337	677	1,829	2	.....	9	.....
State of Wisconsin General Hospital **	Madison	F. A. Davis and W. Nesbit	OpOt	804	634	2,337	.....	4	1/1, 7/1	9-36	25.00
Milwaukee County Hospital **	Milwaukee	T. F. McCormick and W. E. Grove	OpOt	1,009	833	3,356	1,317	4	7/1	9-36	63.32

Hospitals, 124; Assistant Residencies and Residencies, 579

13. ORTHOPEDIC SURGERY

The following services are approved by the Council and the American Board of Orthopedic Surgery
(See footnotes 1, 2 and 3)

Navy Hospitals

U. S. Naval Hospital *¹.....Bethesda, Md.U. S. Naval Hospital *¹.....Philadelphia

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies ^b	Beginning of Service (1915)	Length of Ser- vice (Months)	Beginning Stipend (Month)
Jefferson and Hillman Hospitals * ¹	Birmingham, Ala.	J. D. Sherrill	353	2,333	30	2	2	Varies	9-12	\$50.00
Children's Hospital * ^{1,4}	Los Angeles	J. Wilson	292	3,185	1	1	1	7/1	9	100.00
Los Angeles County Hospital * ^{2,4}	Los Angeles	A. E. Gallant	3,521	22,508	188	17	5	Varies	9-24	157.20
Orthopaedic Hospital ¹	Los Angeles	C. L. Lowman	1,939	25,507	1	..	3	7/1	9-18	50.00
White Memorial Hospital * ²	Los Angeles	G. M. Taylor	.....	4,565	7	..	1	.....	9	.....
Children's Hospital * ^{1,4}	San Francisco	L. Abbott	472	.....	.....	.....	2	.....	9	.....
Franklin Hospital * ^{1,4}	San Francisco	L. C. Abbott and F. C. Bost	1,262	.....	12	10	4	7/1	9-12	100.00
San Francisco Hospital * ^{2,4}	San Francisco	F. C. Bost	151	.....	4	0	1	.....	9	115.00
Shriners Hospital for Crippled Children * ^{1,4}	San Francisco	F. C. Bost	183	1,775	0	..	2	.....	9	100.00
University of California Hospital * ^{2,4}	San Francisco	L. C. Abbott	237	6,722	1	..	2	Varies	9-12	50.00
Children's Hospital ¹	Denver	A. Thomas	386	.....	1	1	.....	7/1	9-36	100.00
New Haven Hospital * ^{1,4}	New Haven, Conn.	M. Eveleth	490	4,488	14	..	3	7/1	9-12	*
Newington Home for Crippled Children ¹	Newington, Conn.	R. M. Yergason	168	20,177	0	..	2	Varies	9-24	.....
Alfred I. du Pont Institute of The Nemours Foundation ¹	Wilmington, Del.	A. R. Shands	114	1,670	0	..	1	7/1	9-24	50.00
Central Dispensary and Emergency Hosp. * ^{1,4}	Washington, D. C.	G. W. Leadbetter	1,083	1,349	19	1	3	4/1	9-12	10.00
Fredmen's Hospital * ^{2,4}	Washington, D. C.	J. Nevins	230	2,447	9	1	1	.....	9	.....
Gallinger Municipal Hospital * ^{1,4}	Washington, D. C.	.....	420	2,574	18	1	12	7/1	9	.....
Scottish Rite Hosp. for Crippled Children ¹	Decatur, Ga.	J. H. Kite	234	2,333	2	0	1	.....	9	.....
Georgia Warm Springs Foundation ¹	Warm Springs, Ga.	C. E. Irwin	543	.....	0	..	12	.....	9	.....
Children's Memorial Hospital ¹	Chicago	E. L. Compere	.....	2,101	2	1	12	7/1	9-12	75.00
Cook County Hospital * ^{2,4}	Chicago	E. J. Berkhiser	567	3,298	15	0	3	1/1, 7/1	9-36	25.00
Michael Reese Hospital * ^{2,4}	Chicago	D. H. Levinthal	522	1,616	5	3	4	.....	9-36	25.00
Research and Educational Hospitals * ²	Chicago	F. A. Chandler	493	12,249	6	4	3	.....	9-36	55.00
St. Luke's Hospital * ¹	Chicago	F. A. Chandler	622	1,184	6	4	12	7/1	9-36	25.00
Shriners Hospital for Crippled Children * ^{1,4}	Chicago	M. A. Page	226	2,551	0	..	3	7/1	9-12	75.00
University of Chicago Clinics * ^{2,4}	Chicago	C. H. Hatcher	515	5,583	5	4	5	Varies	9-36	25.00
Wesley Memorial Hospital * ^{2,4}	Chicago	E. L. Compere	1,590	.....	11	7	2	1/1	9-12	25.00
Indiana University Medical Center * ^{2,4}	Indianapolis	L. A. Ensminger	1,065	5,895	13	2	3	.....	9-36	75.00
University Hospitals * ^{2,4}	Iowa City	A. Steindler	3,400	5,103	11	3	10	7/1	9	25.00
St. Francis Hospital * ¹	Wichita, Kan.	C. Romhold	948	1,099	7	2	1	Varies	9	120.00
Kosair Crippled Children's Hospital ¹	Louisville, Ky.	W. B. Owen	719	3,221	7	3	3	1/1	9-18	50.00
Louisville General Hospital * ²	Louisville, Ky.	W. B. Owen	828	6,313	55	5	1	7/1	9	50.00
Charity Hospital of Louisiana * ¹	New Orleans	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisiana State University Unit * ²	New Orleans	H. T. Simon	585	4,500	52	4	6	Varies	9-24	60.00
Tulane University Unit * ²	New Orleans	G. A. Caldwell	579	4,521	21	1	6	Varies	9-24	60.00
Independent Unit * ¹	New Orleans	.....	525	3,445	25	1	6	Varies	9-24	60.00
Shriners Hospital for Crippled Children ¹	Shreveport, La.	H. A. Durham	106	571	0	..	2	Varies	9-24	150.00
James Lawrence Kernan Hospital for Crip- pled Children ¹	Baltimore	A. F. Voshell	304	3,372	2	0	2	7/1	9-12	92.00
Johns Hopkins Hospital * ²	Baltimore	G. E. Bennett	547	11,021	10	2	4	7/1	9-48	.....
Boston City Hospital * ^{2,4}	Boston	O. J. Hermann	1,249	12,799	37	..	12	7/1	9	50.00
Children's Hospital * ^{1,4}	Boston	F. R. Ober	428	19,147	0	..	1	.....	9	.....
Labey Clinic ²	Boston	.....	.....	.....	.....	.....	.....	.....	9	.....
Massachusetts	Boston	M. N. Smith-Peterson	463	9,674	..	..	4	.....	9	.....
Shriners Hospit	Springfield, Mass.	G. deN. Hough	261	2,476	1	0	3	.....	9-12	50.00

Numerical and other references will be found on page 405.

13. ORTHOPEDIC SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies ^a	Beginning of Service (1945)	Length of Service (Months)	Beginning Salary (Month)
University Hospital *3,4	Ann Arbor, Mich.	C. E. Badgley	1,316	8,361	5	5	6	Varies	9	\$100.85
Henry Ford Hospital *3,4	Detroit	C. L. Mitchell	1,279	14,932	6	2	3	7/1	9-36	175.00
Mayo Foundation ³	Rochester, Minn.	M. S. Henderson and R. K. Ghormley	(See page 405)				16		9	
Gillette State Hospital for Crippled Children ^{1,4}	St. Paul	C. C. Chatterton	746	6,760	10	8	5	1/1, 7/1	9-12	91.50
Kansas City General Hospital *2	Kansas City, Mo.	H. L. Hess	585	2,994	74	62	2	7/1	9-24	50.00
St. Luke's Hospital *1	Kansas City, Mo.		744	9,247	14	5	1		9	
St. Mary's Group of Hospitals *3	St. Louis	A. O'Reilly	539	4,236	18	2	3	7/1	9	35.00
Shriners Hospital for Crippled Children ¹	St. Louis	R. D. Henth					1		9-18	
Nebraska Orthopedic Hospital ^{1,4}	Lincoln	H. W. Orr	367		11		1	7/1	9-24	125.00
University of Nebraska Hospital *1,4	Omaha	R. D. Shrock	234	1,109	2	2	1	7/1	9-36	50.00
Jersey City Hospital *1,4	Jersey City, N. J.	S. B. Sprague	874	7,225	5	0	6	Varies	9-24	35.00
Hospital and Home for Crippled Children ¹	Newark, N. J.	A. H. Stahl	287		2	0	1		9	
New Jersey Orthopedic Hospital and Disp.	Orange, N. J.	H. W. Smith	707	17,553	9	0	3		9-18	90.00
Kings County Hospital *2	Brooklyn	J. B. L'Episcopo	443	8,452	8	2	3	7/1	9-18	90.00
Long Island College Hospital *2,4	Brooklyn	J. B. L'Episcopo	224	7,773	2	4	3	7/1	9-36	25.00
Buffalo General Hospital *2	Buffalo	F. N. Potts	572	364	21	4	3	7/1	9	
Edward J. Meyer Memorial Hospital *2,4	Buffalo	A. A. Gartner	104	811	1	0	1		9-36	50.00 ^c
Bellevue Hospital, Div. IV—Open Div. *2,4	New York City	A. Krida	256	6,686	7	1	4	Varies	9	25.00
Hospital for Joint Diseases *2	New York City		2,516	30,752	23	5	12	Varies	9-36	40.00
Hospital for Special Surgery *2	New York City	P. D. Wilson	1,361	22,923	5	2	10	Varies	9-24	50.00
Metropolitan Hospital *1,4	New York City	M. J. Wilson	594	2,065	53	2	1	7/1	9-24	100.00
Mount Sinai Hospital *1,4	New York City	K. Lippmann					2	7/1	9-24	50.00
New York Orthopedic Disp. and Hospital ²	New York City	A. DeF. Smith	1,155		6	1	15	Varies	9-36	100.00
St. Luke's Hospital *2	New York City	D. M. Bosworth	513	3,176	13	1	12	Varies	9-36	50.00
Strong Memorial and Rochester Municipal Hospitals *2,4	Rochester, N. Y.	R. P. Schwartz	541	4,221			3	7/1	9-24	41.66
Sea View Hospital ^{1,4}	Staten Island, N. Y.	D. M. Bosworth	155		16	1	3	1/1, 7/1	9	110.00
New York State Reconstruction Home ¹	W. Haverstraw, N. Y.	H. Hallock	251	493	0		3	1/1, 7/1	9-24	100.00
Duke Hospital *2,4,13	Durham, N. C.	L. D. Baker	816	8,187	5	3	5	Every 9 mo	9	83.33
Cincinnati General Hospital *2	Cincinnati	J. Freiberg	238	2,252	5	1	4	7/1	9-24	
Cleveland Clinic Foundation Hospital *2	Cleveland	J. Dickson	486				5		9	100.00
Mount Sinai Hospital *1,4	Cleveland	R. Reich	640	1,262	15	2	1	7/1	9-12	100.00
University Hospitals *2,4	Cleveland	M. Harbin	561	3,479	4	2	1	7/1	9	25.00
St. Vincent's Hospital *1,4	Toledo, O.	B. J. Helm	825	3,093	4	0	1		9-24	250.00
Bone and Joi	Oklahoma City	E. D. McBride	1,101				1		9	75.00
St. Anthony	Oklahoma City	W. K. West	1,033				6	4/1	9-27	75.00
University Hospitals *2	Oklahoma City	W. K. West	990	7,419	24	7	1		9	
Mersey Hospital for Crippled Children ¹	Tulsa, Okla.						2	7/1	9-24	75.00
Emanuel Hospital *1,4	Portland, Ore.	L. S. Lucas	1,438		26	11	2		9	
Shriners Hospital for Crippled Children ¹	Portland, Ore.	L. S. Lucas	260				1		9	
University of Oregon Medical School Hospitals and Clinics *2,4	Portland, Ore.	L. S. Lucas	412	3,438	25	11	3	7/1	9-18	75.00
State Hospital for Crippled Children ¹	Elizabethtown, Pa.	T. Outland	265	907	0		4	7/1	9-24	161.00
Hosp. of the University of Pennsylvania *2,4	Philadelphia	C. C. Colonna	720	5,387	6	4	3	7/1	9-36	
Shriners Hospital for Crippled Children ^{1,4}	Philadelphia	J. R. Moore	175	2,288	0		3	1/1	9-24	50.00
Temple University Hospital *2,4	Philadelphia	J. R. Moore	531	2,784	9	1	3	7/1	9-36	52.00
Robert Packer Hospital *1	Sayre, Pa.	P. H. Harmon	1,107	3,645	15	6	3	7/1	9-36	125.00
Roper Hospital *2	Charleston, S. C.	F. A. Hoshall	385	2,197	2	1	3	7/1	9-27	50.00
Shriners Hospital for Crippled Children ¹	Greenville, S. C.	J. W. White	364	2,075	1		2	7/1	9-24	50.00
Willis C. Campbell Clinic ³	Memphis, Tenn.	J. S. Speed	1,443	11,370	15	0	10	1/1, 7/1	9-36	50.00
Parkland Hospital *1,4	Dallas, Tex.	S. Driver					1		9	50.00
Texas Scottish Rite Hospital for Crippled Children ¹	Dallas, Tex.	B. Carrell	629	3,436	2	1	3	1/1, 7/1	9	
University of Virginia Hospital *2,4	Charlottesville	R. V. Funsten	554	3,809	4	1	9	7/1	9	33.00
Children's Orthopedic Hospital ^{1,4}	Seattle	H. E. Coe	472 ^b	2,714 ^b			1		9	200.00
State of Wisconsin General Hospital *3,4	Madison	R. E. Burns	1,538	3,436	16	6	6	1/1, 7/1	9-36	25.00
Milwaukee County Hospital *1,4	Milwaukee	C. C. Schneider	2,132	2,196	54	3	3	7/1	9-36	65.32

Hospitals, 95; Assistant Residencies and Residencies, 320

14. PATHOLOGY

Navy Hospital
U. S. Naval Hospital, Philadelphia

Name of Hospital	Location	Chief of Service	Inpatients Treated ^a	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residencies ^a	Beginning of Service (1945)	Length of Service (Months)	Beginning Salary (Month)
Jefferson and Hillman Hospitals *	Birmingham, Ala.	A. E. Caseb and J. A. Cunningham	15,062		1,439	31	3	1/1, 7/1	9-12	\$50.00
Cedars of Lebanon Hospital *4	Los Angeles	R. Straus	11,034	5,332		41	1	7/1	9	100.00
Children's Hospital ⁴	Los Angeles	R. E. Knutti	4,453	295	202	26			9	
Hospital of Good Samaritan *4	Los Angeles	R. W. Hammack	10,095			38	3	Varies	9-36	157.20
Los Angeles County Hospital *4	Los Angeles	E. M. Butt	45,424	6,000	5,400	33	2		9	
St. Vincent's Hospital *	Los Angeles	R. Shoemaker	13,181	3,623	1,924	39	1		9-12	116.00
White Memorial Hospital *	Los Angeles	G. B. Pratt	10,155	5,062	3,161	43	1	7/1	9	80.00
Highland-Alameda County Hospital *4	Oakland, Calif.	O. Moore	6,996	1,912	1,912	17	2	7/1	9	
Collis P. and Howard Huntington Memorial Hospital	Pasadena, Calif.	A. G. Foord	8,435	3,130	1,855	51	1	8/1	9-12	150.00
-French Hospital *	San Francisco	W. T. Cummins	5,031			22	1		9-18	75.00
Mount Zion Hospital *4	San Francisco	G. R. Biskind	5,333	2,032	1,070	45	2	Varies	9	115.00
Stanford University Hospitals *4	San Francisco	A. J. Cox	14,668	2,060	2,060	33	3	7/1	9	50.00
University of California Hospital *4	San Francisco	J. F. Rinehart	9,710	1,604	1,604	36	1	Varies	9-12	50.00
Santa Clara County Hospital *	San Jose, Calif.	F. Proescher	7,761	2,817	2,817	79	1		9	
Santa Barbara Cottage Hospital *	Santa Barbara, Calif.	W. V. Knoll	4,296	1,000	1,000	52	1		9-12	50.00
Denver General Hospital *	Denver	W. W. Williams	9,493	1,141	896	35	1		9-36	50.00
Hartford Hospital *	Hartford, Conn.	R. E. Kendall	21,513			34	3		9	
St. Francis Hospital *	Hartford, Conn.	L. P. Hastings	15,336	3,400	3,000	18	1		9	
New Britain General Hospital *	New Britain, Conn.	P. D. Rosahn	7,200	3,159	2,856	15	1		9	
New Haven Hospital *	New Haven, Conn.	W. C. Winternitz	10,838	2,920	2,872	69	5		9	
Children's Hospital ⁴	Washington, D. C.	E. C. Rice	6,512	253	48	81	1		9	
Gallinger Municipal Hospital *	Washington, D. C.	H. V. Connerty	16,573	1,547	1,547	47	1		9	75.00
Garfield Memorial Hospital *	Washington, D. C.	J. W. Lindsay	9,246	1,037	763	54	1	7/1	9-24	75.00
Georgetown University Hospital *	Washington, D. C.	V. J. Dardinski	6,539	1,381	637	33	5			

Numerical and other references will be found on page 405.

14. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated *	Surgical Specimens	Number Examined Autopsically	Autopsy Percentage	Asst Res and Residencies *	Beginning of Service (1916)	Length of Ser- vice (Months)	Beginning Salary (Monthly)
George Washington University Hospital *	Washington, D C	R M Choieser	2,820	578	578	61	0		9	
Sibley Memorial Hospital *	Washington, D C	O B Hunter	10,561	3,745	3,485	31	1		9 12	\$100 00
Grady Memorial Hospital *	Atlanta, Ga	W H Sheldon	13,182	3,899	1,899	33	3	7/1	9	20 00
University Hospital *	Augusta, Ga	E R Fund	10,453	3,690	2,460	12	12		9	
Emory University Hospital *	Emory University, Ga	J S Simonds	8,064	1,778	1,778	41	1	7/1	9 12	50 00
Children's Memorial Hospital *	Chicago	H Popper	2,377	151	150	78	1		9 12	79 17
Cook County Hospital *	Chicago	O Saphir	33,137	5,075	4,093	21	23		9	
Michael Reese Hospital *	Chicago	I Davidsohn	14,944	3,645	3,645	56	6		9	
Mount Sinai Hospital *	Chicago	E Hildebrand Jr	7,835	3,619	2,372	33	2	7/1	9	50 00
Passavant Memorial Hospital *	Chicago	G J Rukstinat	7,617	869		66	1		9	
Presbyterian Hospital *	Chicago	J H Lewis	11,941	3,475	3,475	63	2	1/1, 7/1	9-36	50 00
Provident Hospital *	Chicago	E F Hirsch	4,508	1,014	1,014	50	1	7/1	9	50 00
Research and Educational Hospitals *	Chicago	G A Bennett	4,757	1,433	1,433	93	3		9-36	55 00
St Luke's Hospital *	Chicago	E F Hirsch	14,158	5,360	4,800	67	5	7/1	9-6	25 00
University of Chicago Clinics *	Chicago	P R Cannon	11,328	2,406	2,088	73	5	Varies	9-6	25 00
Wesley Memorial Hospital *	Chicago	E R Strauser	12,607	4,451	3,181	56	1	Varies	9-6	25 00
Evanson Hospital *	Evansston, Ill	J McCarter	7,878	3,159	1,492	82	1	5/1	9	100 00
St Francis Hospital *	Frankston, Ill	L F Bleyer	9,432	1,771	1,640	17	1		9 12	75 00
Methodist Hospital of Central Illinois *	Peoria, Ill	R H Fuller	4,658	2,426	1,741	60	1	7/1	9	175 00
St Francis Hospital *	Peoria, Ill	E J Kraus	13,462	4,138	4,138	55	1	5/1	9-36	150 00
Indianapolis City Hospital *	Indianapolis	A Nettleship	9,572	1,672	1,580	28	2	4/1	9-24	70 00
Indiana University Medical Center *	Indianapolis	C G Culbertson	9,246	2,522	2,522	46	4		9 12	33 00
Methodist Hospital *	Indianapolis	L A Hoyt	20,085	6,035	6,033	29	2		9	
Ball Memorial Hospital *	Muncie Ind	L G Montgomery	6,744	3,773	3,388	37	1	7/1	9 18	150 00
Memorial Hospital *	So. Bend Ind	S Glordano	9,034	1,369	813	24	1		9	
University Hospitals *		P Smith	16,977			42	3	7/1	9	2 00
University of Kansas Hospitals *		R Wahl	7,066	4,519	1,329	49	2		9-6	50 00
St Francis Hospital *	Wichita, Kan	C A Hellwig	14,096	5,832	5,832	42	1	6/1	9 18	150 00
Louisville General Hospital *	Louisville, Ky	A J Miller	9,971	1,416	1,393	24	2		9	
Charity Hospital of Louisiana *	New Orleans	F Moes	37,712	7,696	7,696	36	6	Varies	9-48	60 00
Pouro Infirmary *	New Orleans	J Schenken	1,009	720	3,720	61	2		9	70 00
U S Marine Hospital *	New Orleans	C H Binford	7,258			70	1		9	150 00
Shreveport Charity Hospital *	Shreveport, La	W R Matthews	12,172	708	3,078	50	2	7/1	9-36	60 00
Maine General Hospital *	Portland Me	J E Porter	9,086	2,270	2,270	34	2	6/1	9-24	75 00
Baltimore City Hospitals *	Baltimore	F B Kindell	4,404	465	465	39	4	4/1	9 12	40 00
Johns Hopkins Hospital *	Baltimore	A Rich	18,214	2,870	2,820	67	5	7/1	9	
Sinal Hospital *		T Weinberg	6,083	1,970	1,970	31	12	7/1	9 12	75 00
University Hospital *		H R Spencer	10,025	4,036	4,036	62	2		9	
Beverly Hospital *		D A Nickerson and I Stergus	3,880			68	1		9	
Boston City Hospital *	Boston	F Parker Jr	35,559	3,911	3,911	22	5	7/1	9	50 00
Boston Lying In Hospital *	Boston	A T Hertig	3,040	302	302	42	1	1/1	9	50 00
Children's Hospital *	Boston	C B Wolbach	5,746	613	613	93	1		9	
Massachusetts General Hospital *	Boston	T B Mallory	7,910	8,211	8,211	3	3		9	
Massachusetts Memorial Hospitals *	Boston	C F Branch	8,248	1,691	1,691	72	1	7/1	9	
New England Deaconess Hospital *	Boston	S Warren	7,666			48	12	10/1	9	
Peter Bent Brigham Hospital *	Boston	C B Wolbach	4,668	1,400	1,400	75	2		9	
Salem Hospital *		D A Nickerson	5,520	1,399	1,399	35	1		9	
Pondville Hospital *			763	953	88	2	Varies	9	177 00	
Worcester City H *		R H Goodale	8,890	2,941	2,604	17	2	7/1	9	125 00
Worcester State H *		W Freeman	757	153	153	28	1		9	
University Hospital *	Ann Arbor, Mich	C V Weller	14,282	5,763	5,763	64	1	Varies	9	100 00
City of Detroit Receiving Hospital *	Detroit	B A Stoffer	17,540	2,000	2,000	41	2		9	
Harper Hospital *	Detroit	P F Morse	18,974	6,906	6,906	44	2		9	
Henry Ford Hospital *	Detroit	F W Hartman	17,767	4,687	4,687	56	4	7/1	9-36	175 00
Providence Hospital *	Detroit	D H Kaump	13,129	3,859	3,859	67	1		9	
Woman's Hospital *	Detroit	D C Beaver	7,347	3,455	3,267	67	1		9	
Eloise Hospital and Infirmary *	Eloise, Mich	S E Gould	5,447	1,661	1,661	25	3		9	
Hurley Hospital *	Flint, Mich	J L Haymond	11,913	4,739	4,739	33	1	7/1	9	125 00
St Luke's Hospital *	Duluth, Minn	A H Wells	8,093			70	1		9	
St Mary's Hospital *	Duluth, Minn	G I Berdez	9,488	1,233	67	1			9	
Mayo Foundation	Rochester, Minn	H F Robertson	(See page 405)			12			9	
Ancker Hospital *	St Paul	I F Noble	6,511	612	532	72	1	7/1	9	130 00
St Louis County Hospital *	Clayton, Mo	H N Allen	2,569	723	512	40	1	7/1	9+	200 00
Kansas City General Hospital *	Kansas City, Mo	A F Lpsher	8,111	682	675	68	2	7/1	9	50 00
Research Hospital *	Kansas City, Mo	H K B Allebach	6,405	2,282	2,188	44	2	1/1, 10/1	9-6	100 00
St Joseph Hospital *	Kansas City, Mo	L Sherwood	9,227	4,097	2,650	52	1	5/1	9	75 00
St Luke's Hospital *	Kansas City, Mo	M J Jones	6,761	4,050	2,700	54	1		9	
Barnes Hospital *	St Louis	R A Moore	14,516	2,983	2,983	66	2		9	
Homer G Phillips Hospital *	St Louis	S H Gray	10,070	1,076	860	25	1	1/1	9	80 00
Jewish Hospital *	St Louis	C H Gray	6,704	1,373	1,321	32	1		9	
St Louis City Hospital *	St Louis	S H Gray	14,098	2,184	2,184	50	3	7/1	9	80 00
Religious Memorial St Joseph's Hospital *	Omaha	C R Ruseum	11,812	10,881	7,935	45	1		9	
University of Nebraska Hospital *	Omaha	J P Tollman	2,799	851	851	63	1		9	
Mary Hitchcock Memorial Hospital *	Hanover, N H	R E Miller	4,725			70	2		9	
Atlantic City Hospital *	Atlantic City, N J	F Konzelmann	5,588			20	1		9	
Jersey City Hospital *	Jersey City, N J	A Gnass	20,191	2,670	2,670	17	1	Varies	9-24	15 00
Newark Beth Israel Hospital *	Newark, N J	I Goldman	10,884	1,277	2,277	29	2	7/1	9-24	25 00
Albany Hospital *	Albany, N Y	A W Wright	12,865	3,877	3,877	54	3		9	
Bender Hygienic Laboratory	Albany, N Y	J J Clemmer				4			9	
Brooklyn Hospital *	Brooklyn	J A de Veer and J F Hall	7,777	2,131	2,107	39	1		9	
Cumberland Hospital *	Brooklyn	S H Polayes	5,790	808	808	43	2	7/1	9 12	50 00
Israel Zion Hospital *	Brooklyn	J M Ravid	9,567	2,131	2,131	35	1	1/1, 10/1	9 18	125 00
Jewish Hospital *	Brooklyn	M Lederer	12,525	4,371	4,045	71	3	7/1, 10/1	9 12	2 00
Kings County Hospital *	Brooklyn	C G Burns	44,965	5,777	6,020	16	5		9	
Long Island College Hospital *	Brooklyn	J R Oliver	7,582	2,124	2,124	29	1	7/1	9 12	25 00
St John's Hospital *	Brooklyn	R Gettlinger	7,960	1,308	1,308	29	1	7/1	9	100 00
Buffalo General Hospital *	Buffalo	K Terplan	10,576	3,858	3,858	42	4		9	
Edward J Meyer Memorial Hospital *	Buffalo	W E Jacobs and J Sances	9,101	2,226	2,226	22	2	7/1	9-7	50 00
Millard Fillmore Hospital *	Buffalo	H J Welch	11,822	3,996	3,996	29	1	7/1	9 12	50 00
Meadowbrook Hospital *	Hempstead, N Y	T J Curphey	4,770	609	609	26	2		9	
Queens General Hospital *	Jamaica, N Y	A Angrist	9,250	6,677	6,677	55	12	7/1	9-24	110 00
Beth Israel Hospital *	New York City	A Plant	7,548	2,340	2,190	29	1		9	50 00
Bronx Hospital *	New York City	J Felsen	7,750	2,660	1,742	22	1		9	
Goodman Hospital *	New York City	N Block	9,434	700	702	18	1		9	
St of Water Memorial Hospital *	New York City	M Levans	1,676	2,844	2,844	22	2		9	

14. PATHOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated *	Surgical Specimens	Number Examined Microscopically	Autopsy Percentage	Asst. Res. and Residences *	Beginning of Service (1945)	Length of Service (Months)	Beginning Resident (Month)
Harlem Hospital**	New York City	M. Rothman	16,302	1,735	1,735	12	2	4/1	9	\$100.00
Lenox Hill Hospital**	New York City	G. L. Rohdenburg	11,897	2,137	2,138	36	1		9	
Lincoln Hospital**	New York City	J. G. Sharnoff	9,546	1,850	1,850	28	2		9	
Metropolitan Hospital**	New York City	A. Sacccone	8,838	861	850	22	1		9	
Montefiore Hospital for Chronic Diseases**	New York City	D. Marine	1,729	372	372	45	2	7/1	9	50.00
Morrisania City Hospital**	New York City	W. Aronson	10,703	1,705	1,705	13	1		9	
Mount Sinai Hospital**	New York City	P. Klemperer	14,534	5,524	5,524	41	9	1/1, 7/1	9-12	
New York City Hospital*	New York City	J. R. Liss	7,142	1,339	1,009	37	2	7/1	9	60.00
New York Hospital**	New York City	J. G. Kidd	18,267	5,340	4,003	57	1		9	
New York Post-Graduate Medical School and Hospital**	New York City	M. N. Richter	8,423	3,782	3,702	41	3	7/1, 10/1	9-24	90.00
Presbyterian Hospital**	New York City	J. W. Jobling	25,985	4,613	4,247	53	3		9	
Roosevelt Hospital**	New York City	W. W. Brandes	7,202	2,124	2,124	37	2	7/1	9-12	50.00
St. Luke's Hospital**	New York City	L. C. Knox	8,165	1,888	1,875	39	1	Varies	9-36	50.00
St. Vincent's Hospital**	New York City	A. Rottino	11,741	1,832	1,832	48	1		9	
Sydenham Hospital*	New York City	G. Silverman	5,206	1,686	1,686	44	1		9	
Willard Parker Hospital*	New York City	V. B. Dolgopol	4,616	25	25	42	1		9	
Rochester General Hospital**	Rochester, N. Y.	M. G. Bohrod	9,373	6,700	6,000	70	1		9	
St. Mary's Hospital**	Rochester, N. Y.	S. M. Bouton Jr.	8,313	3,038	2,120	32	1	7/1	9-12	125.00
Strong Memorial and Rochester Municipal Hospitals**	Rochester, N. Y.	G. H. Whipple	14,357	3,070	3,070	75	3		9-24	41.66
Ellis Hospital**	Schenectady, N. Y.	E. Kellert	12,742	3,787	3,772	27	2	7/1	9-36	125.00
Syracuse University Medical Center*	Syracuse, N. Y.	J. H. Ferguson	4,287	903	903	39	1		9	
Samaritan Hospital**	Troy, N. Y.	G. H. Klinek	4,559	1,919	1,900	40	1		9	
Grasslands Hospital**	Valhalla, N. Y.	G. Daldorf	4,465	1,596	1,540	52	2		9	
Duke Hospital**	Durham, N. C.	W. D. Forbus	12,927	16,815	16,815	63	14	Varies	9	
Watts Hospital**	Durham, N. C.	J. B. Male	7,527	2,291	2,291	28	1		9	
North Carolina Baptist Hospital**	Winston-Salem, N. C.	R. P. Morehead	6,492	1,743	1,743	54	4	7/1	9	41.66
City Hospital*	Akron, O.	L. Catron	10,960	3,234	3,384	31	2		9	100.00
Christ Hospital*	Cincinnati	I. H. Schroth	12,209	3,662	2,485	28	2	7/1	9-18	75.00
Cincinnati General Hospital**	Cincinnati	W. W. Austin	13,090	1,783	1,768	38	8	7/1	9-24	
City Hospital**	Cleveland	H. Lund	10,295	1,689		33	8		9	
Mount Sinai Hospital**	Cleveland	B. S. Kline	7,638	2,422	2,422	44	2	7/1	9-12	75.00
St. Luke's Hospital*	Cleveland	R. Dominguez	10,015	2,404	2,113	33	1	7/1	9-12	50.00
St. Vincent Charity Hospital*	Cleveland	W. P. Jennings	6,937	1,821	1,821	30	1		9	
University Hospitals**	Cleveland	H. T. Karsner	20,256			62	2	7/1	9	
Starling-Loving University Hospital**	Columbus, O.	H. L. Reinhart	6,544	1,953	1,953	48	3	7/1	9	50.00
White Cross Hospital*	Columbus, O.	R. S. Fidler	9,491	4,873	3,460	15	1		9	
Miami Valley Hospital*	Dayton, O.	M. Oosting	11,135	6,065	6,065	35	1	7/1	9	125.00
Toledo Hospital*	Toledo, O.	B. Stefnberg	7,143	2,162	1,844	28	1	7/1	9-36	75.00
Youngstown Hospital*	Youngstown, O.	G. B. Kramer	17,432			19	1		9	
University Hospitals*	Oklahoma City	B. Halpert and H. C. Hop	5,574	1,839	1,581	40	3		9	
Emanuel Hospital**	Portland, Ore.	H. H. Cokett	11,532	4,184	1,880	48	1	7/1	9-12	75.00
St. Vincent's Hospital*	Portland, Ore.	F. R. Menne	10,739	4,638		35	2		9	
University of Oregon Medical School Hospitals and Clinics**	Portland, Ore.	W. C. Hunter	5,770	1,309	1,309	55	3	7/1	9	75.00
Abington Memorial Hospital*	Abington, Pa.	J. Elman	7,207	4,301	2,081	35	1	7/1	9-18	100.00
Bryn Mawr Hospital*	Bryn Mawr, Pa.	M. M. Strumia	5,899	3,851	3,517	36	2	7/1	9	50.00
George F. Gelsinger Memorial Hospital*	Danville, Pa.	N. F. Hunt	6,072	1,004	1,565	28	1	7/1	9	75.00
Pittsburgh City Home and Hospitals*	Mayview, Pa.	G. H. Fetterman	478	56	56	12	1		9	
Germantown Dispensary and Hospital*	Philadelphia	F. B. Lynch Jr.	6,614	1,529	910	52	1	7/1	9-36	
Graduate Hospital of the University of Pennsylvania*	Philadelphia	F. A. Case	5,420	1,687	1,687	34	1	7/1	9-24	
Hahnemann Hospital**	Philadelphia	S. W. Sappington	10,548	2,793	2,793	45	2	7/1	9-18	50.00
Hosp. of the Protestant Episcopal Church**	Philadelphia	W. P. Belk	7,794			48	1		9	
Hosp. of the University of Pennsylvania**	Philadelphia	E. B. Krumbhaar	14,268			75	3		9-36	
Jefferson Medical College Hospital*	Philadelphia	C. J. Bucher	16,337	163,235	163,235	63	2		9	
Jewish Hospital**	Philadelphia	C. Weiss	9,873	1,329	1,329	63	1		9	
Mount Sinai Hospital**	Philadelphia	D. R. Meranze	6,706	2,020	2,020	56	1	1/1	9	100.00
Pennsylvania Hospital*	Philadelphia	D. R. Meranze	8,668	1,835	1,835	46	2	7/1	9-15	20.00
Philadelphia General Hospital**	Philadelphia	J. T. Bauer	22,701	1,883	1,883	52	1	Varies	9	93.33
Presbyterian Hospital*	Philadelphia	J. H. Clark	6,361			71	2		9	
Temple University Hospital**	Philadelphia	J. W. Hooker	10,932			43	2		9	
Allegheny General Hospital*	Pittsburgh	L. W. Smith	10,357	2,128	2,128	19	3	7/1	9	100.00
Children's Hospital*	Pittsburgh	S. R. Haythorn	4,593	247	247	27	1	Varies	9-12	75.00
Elizabeth Steel Magee Hospital*	Pittsburgh	M. L. Menten	7,332	2,077	1,973	21	2	7/1	9	41.66
Mersey Hospital**	Pittsburgh	M. Cohen	13,476	3,662	3,295	25	2	7/1	9-24	
Montefiore Hospital**	Pittsburgh	H. H. Perner	5,603	1,787	981	30	1		9	
Presbyterian Hospital**	Pittsburgh	K. Yardumian	4,595	1,503	1,353	23	1	7/1	9-36	50.00
St. Francis Hospital*	Pittsburgh	E. L. Heller	12,658	3,632	1,439	16	3		9	
Western Pennsylvania Hospital**	Pittsburgh	A. J. Bruecken	11,166	1,670	1,670	23	1	7/1	9-24	75.00
Reading Hospital**	Reading, Pa.	A. Graham	6,093	2,204	1,419	68	1	7/1	9-12	125.00
Rhode Island Hospital*	Providence, R. I.	E. D. Funk	10,911	3,513	2,732	48	2	7/1	9	50.00
John Gaston Hospital*	Memphis, Tenn.	B. E. Clarke	11,290	1,737	1,711	40	2		9	
St. Joseph Hospital*	Memphis, Tenn.	D. H. Sprunt	10,236	4,446	3,096	25	1		9	
Nashville General Hospital**	Nashville, Tenn.	T. C. Moss	6,586	821	820	20	2		9	
Vanderbilt University Hospital**	Nashville, Tenn.	W. A. DeMonbreun	6,295			61	3		9	
Baylor University Hospital**	Dallas, Tex.	E. M. Hill	20,357	6,140	6,140	23	1		9	
Parkland Hospital**	Dallas, Tex.	C. T. Ashworth	7,520	1,594	1,384	24	1		9	
Jefferson Davis Hospital**	Houston, Tex.	W. W. Coulter Sr.	9,024	1,994	1,363	26	1		9	
Mary Fletcher Hospital**	Burlington, Vt.	E. H. Buttles	4,415	844	829	44	2	7/1	9-12	100.00
Medical College of Virginia Hospital Div.*	Richmond, Va.	F. L. Apperly	14,416	4,780	4,694	34	2	7/1	9-12	27.50
Providence Hospital*	Seattle	D. G. Mason	11,057	2,677	3,144	18	1	7/1	9	
Tacoma General Hospital*	Tacoma, Wash.	B. T. Terry	7,994			15	1		9	
State of Wisconsin General Hospital**	Madison, Wis.	W. G. J. Putzchar	10,439	1,924	1,845	39	2		9	25.00
Columbia Hospital**	Milwaukee	W. D. Stoval	12,682	2,893	2,784	65	2	7/1	9-18	50.00
Milwaukee County Hospital**	Milwaukee	G. H. Hansmann	4,238	1,766	1,148	48	1	7/1	9-36	63.32
St. Joseph's Hospital*	Ancon, C. Z.	J. Grill	11,547	792	759	34	2	7/1	9	
Gorgas Hospital*	Honolulu, Hawaii	J. Grill	11,495	2,158	2,175	15	1	1/1	9	
Queen's Hospital*	Honolulu, Hawaii	B. H. Kenn	23,036	1,732	1,752	75	1	7/1	9-13	150.00
		S. Price	11,282	2,893	2,893	25	1			

Hospitals, 207; Assistant Residencies and Residences, 438

15. PEDIATRICS

Navy Hospital

U. S. Naval Hospital,* Philadelphia

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Outpatient Visits	Deaths	Autopsies	Asst. Res. Residencies	Beginning Service (1910)	Length of Service (Months)	Beginning Attend (Month)
Children's Hospital*	Birmingham, Ala.	A. A. Walker	1,403	4,006	59	31	12	1/1, 7/1	9-12	50.00
Jefferson and Hillman Hospitals*	Birmingham, Ala.	A. A. Walker	878	564	60	11	1	1/1, 7/1	9-12	150.00
Norwood Hospital*	Birmingham, Ala.	E. B. Smith	434	5,428	20	4	1	7/1	9-12	135.00
General Hospital of Fresno County**	Fresno, Calif.	A. B. Cowan	573	1,111	41	15	1	7/1	9-12	200.00
California Babies' and Children's Hospital*	Los Angeles	Z. E. Heiney	353	12,092	3	2	1	1/1	9-12	50.00
Children's Hospital*	Los Angeles	V. Stork	1,854	21,722	163	127	5	7/1	9-12	137.20
Los Angeles County Hospital**	Los Angeles	E. F. Patton	3,300	3,065	213	98	12	7/1	9-12	116.00
Los Angeles County Hospital**	Los Angeles	M. B. Brooks	438	8,302	36	26	12	7/1	9-12	157.20
Los Angeles County Hospital**	Oakland, Calif.	C. Sweet	3,037	17,762	30	16	12	4/1, 7/1	9-12	150.00
Los Angeles County Hospital**	Oakland, Calif.	C. F. Gelston	584 ^b	1,012 ^b	...	...	12	7/1	9-12	150.00
Los Angeles County Hospital**	Oakland, Calif.	C. F. Gelston	3,001	3,204	63	29	1	7/1	9-12	115.00
Los Angeles County Hospital**	Oakland, Calif.	M. B. Olney	555	...	26	8	1	7/1	9-12	50.00
Los Angeles County Hospital**	Oakland, Calif.	H. K. Faber	468	15,467	16	7	4	7/1	9-12	50.00
Los Angeles County Hospital**	Oakland, Calif.	F. S. Smyth	557	10,953	32	32	3	7/1	9-12	50.00
Children's Hospital*	Denver	W. W. Barber	1,891	...	41	35	6	7/1	9-12	100.00
Denver General Hospital*	Denver	W. Jones	1,915	5,435	66	26	1	1/1, 7/1	9-12	50.00
Hospital of St. Raphael*	Denver	W. Jones	1,422	...	18	7	1	7/1	9-12	75.00
New Haven Hospital*	Washington, D. C.	G. Powers	1,695	7,213	68	...	7	7/1	9-12	50.00
Children's Hospital*	Washington, D. C.	J. S. Wall	6,512	...	275	233	12	6/1	9-12	40.00
Freedmen's Hospital*	Washington, D. C.	A. deG. Smith	671	2,425	90	25	12	1/1	9-12	50.00
Washington, D. C.	Washington, D. C.	A. deG. Smith	1,152	8,906	56	19	4	7/1	9-12	50.00
Atlanta, Ga.	Atlanta, Ga.	R. W. Dickson	728	20,068	77	36	6	7/1	9-12	50.00
for Children*	Atlanta, Ga.	M. H. Roberts	954	...	59	27	12	6/1, 10/1	9-12	50.00
Atlanta, Ga.	Augusta, Ga.	C. M. Burpee	1,309	1,379	83	12	20	10/1	9-12	35.00
Chicago, Ill.	Chicago, Ill.	S. Gibson	3,330	45,816	116	87	20	1/1, 7/1	9-12	75.00
Chicago, Ill.	Chicago, Ill.	M. L. Blatt	8,040	...	425	365	9	1/1, 7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	H. A. Oberhelman	2,738	4,143	120	51	1	10/1	9-12	75.00
Chicago, Ill.	Chicago, Ill.	J. Gerstley	2,163	5,662	184	143	4	7/1, 10/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	C. G. Grulee	890	3,524	24	16	12	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	E. W. Beasley	1,890	4,710	39	35	1	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	H. G. Poncher	198	4,699	25	25	12	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	S. C. Henn	386	6,845	16	13	1	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	M. L. Blatt	881	...	11	11	12	1/1, 7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	M. L. Blatt	1,006	20,791	43	37	4	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	E. G. Lawler	3,589	...	23	12	1	7/1	9-12	100.00
Chicago, Ill.	Chicago, Ill.	J. C. Carter	598	3,881	83	14	1	4/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	M. Winters	1,451	4,373	144	61	12	7/1	9-12	33.00
Chicago, Ill.	Chicago, Ill.	P. C. Jeans	821	2,496	51	21	5	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	F. Neff	620	2,789	30	20	1	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	J. W. Bruce	2,628	7,006	205	35	5	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	J. W. Bruce	2,922	16,564	345	131	12	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	J. Graubarth	297	4,319	26	6	1	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	H. W. Josephs	217	326	14	7	4	4/1	9-12	40.00
Chicago, Ill.	Chicago, Ill.	E. A. Park	1,481	30,806	147	102	7	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	D. C. W. Smith	463	1,845	34	15	2	7/1	9-12	40.00
Chicago, Ill.	Chicago, Ill.	C. L. Joslin	334	8,318	133	58	3	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	M. J. English	4,149	6,912	160	13	1	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	J. M. Bats	1,002	...	37	22	4	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	J. M. Bats	1,002	...	37	22	4	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	A. M. Butler	7,358	4,943 ^b	...	...	6	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	E. H. Watson	1,370	5,143	79	49	9	7/1	9-12	100.00
Chicago, Ill.	Chicago, Ill.	C. A. Smith	3,356	12,674	339	176	15	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	J. A. Johnston	1,534	17,374	40	29	4	7/1	9-12	155.00
Chicago, Ill.	Chicago, Ill.	R. E. Nuttine	3,147	...	39	32	1	7/1	9-12	75.00
Chicago, Ill.	Chicago, Ill.	A. V. Stoesser	1,674	1,943	26	22	3	7/1	9-12	91.50
Chicago, Ill.	Chicago, Ill.	I. McQuarrie	1,096	4,286	80	73	3	7/1	9-12	91.50
Chicago, Ill.	Chicago, Ill.	H. F. Helmholz	...	(See page 405)	...	...	12	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	C. B. Summers	1,443	7,961	70	36	4	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	C. B. Summers	1,169	3,096	25	22	1	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	D. Jones	1,656	2,766	63	38	2	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	A. F. Hartmann	3,125	...	118	82	11	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	P. F. Hartmann	1,214	2,017	105	62	3	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	J. Zaborsky	1,763	2,907	54	26	3	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	C. P. DeFuccio	3,227	3,004	69	20	3	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	O. A. Faust	694	2,275	28	24	3	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	T. B. Glavan	1,474	3,577	37	22	2	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	B. Kramer	1,227	8,978	47	27	3	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	G. Brockway and	...	...	...	...	...	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	L. Krahulik	2,651	3,600	169	84	4	7/1	9-12	60.00
Chicago, Ill.	Chicago, Ill.	C. A. Weymuller	509	6,375	26	21	3	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	J. A. Monfort and	...	...	...	...	...	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	T. B. Givan	974	600	...	...	1	10/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	D. P. Arnold	1,727	...	...	132	7	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	F. J. Gustina	1,161	3,339	38	18	3	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	H. A. Reisman	950	2,432	50	31	3	7/1	9-12	110.00
Chicago, Ill.	Chicago, Ill.	Emmet Holt	2,641	17,494	67	60	16	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	R. A. Benson	986	1,624	10	4	2	7/1	9-12	100.00
Chicago, Ill.	Chicago, Ill.	M. Gleich	...	...	...	...	2	1/1, 4/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	H. Chaplin and	...	...	...	...	2	1/1, 4/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	J. S. Leopold	532	...	6	6	1	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	A. T. Martin	1,012	5,782	42	29	1	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	R. A. Benson	1,168	5,722	21	23	2	1/1, 4/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	L. Larenberg	945	1,299	45	20	12	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	C. S. Boyd	...	...	...	...	12	1/1, 7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	S. Z. Levine	617	3,511	39	22	1	7/1	9-12	110.00
Chicago, Ill.	Chicago, Ill.	S. Z. Levine	1,223	31,541	86	73	13	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	A. G. DeSanctis	557	10,727	36	19	4	1/1, 4/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	R. McIntosh	3,268	20,442	122	...	13	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	H. F. Jackson	529	4,810	7	5	3	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	S. Brady	1,040	2,075	27	10	12	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	J. Alkman	25	709	12	6	1	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	S. W. Clausen	1,274	10,217	65	54	7	7/1	9-12	41.00
Chicago, Ill.	Chicago, Ill.	B. Ratner	227	...	15	4	4	1/1, 7/1	9-12	110.00
Chicago, Ill.	Chicago, Ill.	C. B. Doust	578	...	31	29	2	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	F. D. Barnes	289	912	16	11	2	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	J. S. Hunt	1,720	2,573	27	11	4	7/1	9-12	25.00
Chicago, Ill.	Chicago, Ill.	W. C. Davison	479	8,169	27	11	4	7/1	9-12	50.00
Chicago, Ill.	Chicago, Ill.	W. C. Davison	611	17	27	5	1	7/1	9-12	75.00
Chicago, Ill.	Chicago, Ill.	J. H. Sidbury	1,712	...	22	15	2	7/1	9-12	150.00
Chicago, Ill.	Chicago, Ill.	R. B. Lawson	537	1,554	24	15	2	7/1	9-12	41.00

Numerical and other references will be found on page 405.

15. PEDIATRICS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
Trinity Hospital ¹⁰	Minot, N. D.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Children's Hospital	Akron, O.	M. P. Jones	5,448	.....	128	42	1	10/1	9	.....
Children's Hospital	Cincinnati	A. A. Weech	7,807	19,509	141	82	16	7/1	9-18	\$55.00
Cincinnati General Hospital ¹⁴	Cincinnati	A. A. Weech	1,084	6,135	138	48	19	7/1	9-24	.....
University Hospitals ¹⁴	Cleveland	H. J. Gerstenberger	.....	.....	.....	.....	3	7/1	9	.....
Children's Hospital ⁴	Columbus, O.	E. H. Baxter	2,702	21,814	.....	91	7	7/1	9-12	80.00
University Hospitals ¹⁴	Oklahoma City	C. H. Hall	713	2,909	99	36	1	7/1	9-18	75.00
University of Oregon Medical School Hospitals and Clinics ¹⁴	Portland, Ore.	J. B. Bilderback	1,330	2,235	98	78	3	7/1	9-18	75.00
Babies' Hospital ⁴	Philadelphia	L. E. McClure	224	29,472	12	8	2	7/1	9-12	83.33
Children's Hospital ⁴	Philadelphia	J. Stokes Jr.	2,419	32,000	102	65	12	7/1	9-27	.....
Children's Hospital of the Mary J. Drexel Home ⁴	Philadelphia	.....	1,003	12,042	20	16	1	1/1	9-12	100.00
Hahnemann Hospital ¹⁴	Philadelphia	C. S. Raue	537	4,370	41	.....	1	7/1	9-18	50.00
Hosp. of the University of Pennsylvania ¹⁴	Philadelphia	J. Stokes Jr.	372	2,755	13	20	1	.....	9	.....
Jefferson Medical College Hospital ¹⁴	Philadelphia	E. L. Bauer	676	5,324	55	39	1	.....	9	.....
Jewish Hospital ¹⁴	Philadelphia	.....	589	112	19	14	1	.....	9-18	75.00
Philadelphia General Hospital ¹⁴	Philadelphia	.....	1,884	.....	93	.....	1	Varies	9	93.33
St. Christopher's Hospital for Children ⁴	Philadelphia	.....	2,017	42,406	62	18	7	.....	9	.....
Temple University Hospital ¹⁴	Philadelphia	.....	477	4,473	23	15	3	7/1	9-36	52.00
Children's Hospital ⁴	Pittsburgh	.....	.....	.....	.....	.....	6	Varies	9-12	75.00
Roper Children's Hospital ¹⁴	Charleston, S. C.	M. W. Beach	936	7,029	79	31	3	7/1	9-27	50.00
T. C. Thompson Children's Hospital	Chattanooga, Tenn.	J. W. Hocker	777	7,815	89	5	2	.....	9	.....
John Gaston Hospital ¹⁴	Memphis, Tenn.	F. T. Mitchell	1,437	4,514	84	50	2	.....	9	.....
George W. Hubbard Hospital of Meharry Medical College ¹⁴	Nashville, Tenn.	W. H. Maddux	554	3,018	31	6	1	1/1	9	75.00
Vanderbilt University Hospital ¹⁴	Nashville, Tenn.	A. Christie	731	12,016	101	60	4	7/1	9	.....
Children's Medical Center ⁴	Dallas, Tex.	H. L. Moore and J. G. Young	2,235	18,001	96	21	9	Varies	9-27	50.00
John Sealy Hospital ¹⁴	Galveston, Tex.	A. Hansen	583	6,243	83	40	3	Varies	9	50.00
Jefferson Davis Hospital ¹⁴	Houston, Tex.	B. Moody	976	4,710	144	43	1	7/1	9	50.00
Salt Lake County General Hospital ¹⁴	Salt Lake City	J. A. Anderson	470	2,527	16	12	1	.....	9	50.00
University of Virginia Hospital ¹⁴	Charlottesville, Va.	W. W. Waddell Jr.	617	4,023	60	20	5	7/1	9	25.00
Medical College of Virginia, Hospital Div. ¹⁴	Richmond	L. H. Sutton	1,635	7,377	116	42	3	7/1	9	37.50
Children's Orthopedic Hospital ⁴	Seattle, Wash.	.....	.....	.....	.....	.....	1	.....	9	.....
State of Wisconsin General Hospital ¹⁴	Madison	J. E. Gonce Jr.	562	2,841	23	19	2	1/1	9-36	25.00
Milwaukee Children's Hospital ⁴	Milwaukee	F. R. Janney	4,190	15,293	102	66	7	7/1	9	.....
Milwaukee County Hospital ¹⁴	Milwaukee	G. H. Fellman	3,740	528	19	2	2	7/1	9-36	65.32

Hospitals, 131; Assistant Residencies and Residencies, 504

16. PHYSICAL MEDICINE

Stanford University Hospitals ¹⁴	San Francisco	W. H. Northway	.....	.....	.....	.....	2	.....	9	.....
Michael Reese Hospital ¹⁴	Chicago	C. O. Molander	.....	.....	.....	.....	2	.....	9	.....
Passavant Memorial Hospital ¹⁴	Chicago	J. S. Coulter	.....	.....	.....	.....	2	.....	9	.....
Mayo Foundation	Rochester, Minn.	F. H. Krusen	.....	.....	.....	.....	6	.....	9	.....

(See page 405)

17. PLASTIC SURGERY

Mayo Foundation	Rochester, Minn.	G. B. New	.....	.....	.....	.....	4	.....	9	.....
Kings County Hospital ¹⁴	Brooklyn	W. A. Coakley	809	1,894	30	2	1	7/1	9-18	\$110.00
Presbyterian Hospital ¹⁴	New York City	.....	.....	.....	.....	.....	2	.....	9	.....
Graduate Hospital of the University of Pennsylvania ¹⁴	Philadelphia	R. H. Ivy	142	30	1	0	1	7/1	9-24	.....

18. PSYCHIATRY

The following services are approved by the Council and the American Board of Psychiatry and Neurology
(See footnotes 1, 2 and 3)

Compton Sanitarium ^{1,4}	Compton, Calif.	G. Myers	545	.....	2	0	1	Varies	9	\$250.00
Livermore Sanitarium ¹	Livermore, Calif.	H. S. Whiting	609	.....	20	2	5	.....	9	.....
Los Angeles County Hospital ^{1,4}	Los Angeles	G. N. Thompson	4,563	.....	99	24	1	Varies	9-12	157.20
Langley-Porter Clinic ^{1,4}	San Francisco	K. M. Bowman	423	.....	.....	.....	12	.....	9	135.00
Mount Zion H ^{1,4}	San Francisco	J. Kasanin	470	1,868	.....	.....	2	3/1	9-18	75.00
Stanford Univ	San Francisco	G. S. Johnson	470	4,150	2	2	3	7/1	9-18	50.00
University of	San Francisco	K. M. Bowman	53	2,933	.....	.....	1	Varies	9-12	50.00
Mendocino State Hospital ²	Talmadge, Calif.	M. J. Rowe	3,499	.....	142	5	2	.....	9	.....
Colorado Psychopathic Hospital ^{3,4}	Denver	C. A. Rymer	880	.....	25	17	6	9/1	9-36	100.00
Colorado State Hospital ^{2,4}	Pueblo, Colo.	F. H. Zimmerman	4,972	.....	381	126	7	.....	9	.....
Institute of Living (Neuro-Psychiatric Institute of the Hartford Retreat) ^{3,4}	Hartford, Conn.	C. C. Burlingame	1,107	.....	16	5	7	.....	Varies	250.00
Connecticut State Hospital ^{2,4}	Middletown, Conn.	H. S. Whiting	3,623	.....	242	30	3	.....	9-12	75.00
New	New Haven, Conn.	E. Kahn	256	1,315	4	.....	9	7/1	.....	210.00
Norv	Norwich, Conn.	L. H. Cohen	3,181	67	232	42	6	Varies	Varies	75.00
Dela	Farmhurst, Del.	M. A. Tarumian	1,200	772	108	25	4	Varies	Varies	.....
Gall	Washington, D. C.	.....	3,000	.....	92	14	1	.....	9	166.66
St.	Washington, D. C.	R. H. Guthrie	9,787	.....	35	23	11	1/1	9	.....
Chic	Chicago	G. Hellbrunn	4,500	.....	620	64	5	.....	9-36	25.00
Cook	Chicago	O. A. Neymann	6,332	.....	159	4	4	1/1, 7/1	.....	.....
Illinois Neuropsychiatric Institute ^{3,4,7}	Chicago	F. J. Gerty	567	.....	.....	.....	5	.....	9	.....
Michael Reese Hospital ^{2,4,7}	Chicago	.....	271	3,224	0	3	2	7/1	9-36	25.00
St. Luke's Hospital ^{1,4}	Chicago	A. P. Solomon	189	2,988	6	.....	2	.....	9-36	25.00
University of Chicago Clinics ^{2,4}	Chicago	D. Slight	6,243	2,117	434	136	6	Varies	9-12	125.00
Elgin State Hospital ^{3,4}	Elgin, Ill.	E. Liebert	6,399	1,800	665	112	4	.....	9-36	50.00
Manteno State Hospital ^{2,4}	Manteno, Ill.	M. Wallenberg	3,315	.....	233	0	5	.....	9-24	50.00
Peoria State Hospital ^{2,4}	Peoria, Ill.	H. B. Knowles	2,228	.....	260	72	4	.....	9	.....
Central State Hospital ²	Indianapolis	M. A. Baber	660	845	36	4	1	4/1	9-36	30.00
Indianapolis City Hospital ²	Indianapolis	L. D. Carter	3,055	.....	238	0	6	7/1	9-36	240.00
Logansport	Logansport, Ind.	C. L. Williams	321	.....	1	0	8	7/1	9	40.00
Iowa State	Iowa City	W. R. Miller	162	376	3	2	8	1/1, 7/1	9-18	150.00
Menninger	Topeka, Kan.	K. A. Menninger	3,286	.....	30	18	.....	.....	9	.....
U. S. Publ	Lexington, Ky.	J. C. Whiteborn	237	3,898	0	.....	18	7/1	9	.....
Johns Hop	Baltimore	S. W. Weltmer	2,971	2,102	207	80	8	.....	9	.....
Spring Gro.	Catonsville, Md.	K. B. Jones	3,550	.....	188	53	6	.....	9	.....
Springfield State Hospital ^{2,4}	Towson, Md.	R. McC. Chapman	412	.....	16	9	9	3/1, 7/1	9-36	100.00
Sheppard and Enoch Pratt Hospital ^{2,4}	Boston	H. C. Solomon	1,408	4,560	19	7	8	9/1	9-12	95.00
Boston Psychopathic Hospital ^{3,4}	Boston	H. F. Norton	3,973	.....	245	58	6	.....	9	.....
Boston State Hospital ^{2,4}	Boston	S. Cobb	172	2,752	11	30	1	.....	9	.....
Massachusetts General Hospital ²	Foxboro, Mass.	J. T. Shea	1,568	.....	101	30	1	.....	9	.....
Foxboro State Hospital ²	Gardner, Mass.	C. E. Thompson	1,707	62	107	17	1	.....	9	177.00
Gardner State Hospital ^{2,4}	Hathorne, Mass.	L. Maletz	2,884	2,000	319	24	2	1/1, 7/1	9-12	45.00
Danvers State Hospital ^{2,4}	Medfield, Mass.	E. K. Holt	2,079	.....	124	26	2	.....	9	.....
Medfield State Hospital ²	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Numerical and other references will be found on page 405.

18. PSYCHIATRY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies *	Beginning of Service (Date)	Length of Service (Months)	Beginning Stipend (Monthly)
Northampton State Hospital ^{2,4}	Northampton, Mass.	L. W. Darrach	2,756	.....	224	0	3	Varies	Varies	.....
Grafton State Hospital ^{2,4}	North Grafton, Mass.	H. L. Paine	1,935	1,510	130	32	14	Varies	9-12	.....
Monson State Hospital ^{2,4}	Palmer, Mass.	M. B. Hodskins	1,512	.....	27	135	5	Varies	9+	.....
Taunton State Hospital ^{2,4}	Taunton, Mass.	R. M. Chambers	2,464	1,759	125	1	5	7/1	9-24	\$176.00
McLean Hospital ^{2,4}	Waverley, Mass.	E. J. Tillotson	237	.....	195	19	3	7/1	9-36	100.00
Westboro State Hospital ^{2,4}	Westboro, Mass.	H. Rickless	2,184	1,172	264	64	10	Varies	Varies	100.85
Worcester State Hospital ^{2,4}	Worcester, Mass.	W. Malamud	3,450	.....	297	.....	6	7/1	9-18	145.58
University Hospital ^{2,4}	Ann Arbor, Mich.	R. W. Waggoner	5,963	.....	235	35	3	7/1	9-36	175.00
City of Detroit Receiving Hospital ^{2,4}	Detroit	J. M. Stanton	864	7,859	271	49	.....	.....	9	.....
Henry Ford Hospital ^{2,4}	Detroit	T. J. Heldt	5,075	.....	267	10	6	.....	9	.....
Eloise Hospital and Infirmary ^{2,4}	Eloise, Mich.	R. A. Morter	2,394	.....	213	63	4	Varies	9-36	287.50
Kalamazoo State Hospital ^{2,4}	Kalamazoo, Mich.	H. C. Dunstone	2,312	310	226	71	6	.....	9	.....
Pontiac State Hospital ^{2,4}	Pontiac, Mich.	R. P. Sheets	3,410	.....	267	48	6	7/1	9-18	91.50
Traverse City State Hospital ^{2,4}	Traverse City, Mich.	O. R. Yoder	4,569	199	163	34	1	7/1	9-36	91.50
Ypsilanti State Hospital ^{2,4}	Ypsilanti, Mich.	J. C. Michael	1,423	1,286	3	.....	.....	.....	.....	.....
Minneapolis General Hospital ^{2,4,5}	Minneapolis	J. C. McKinley	350	.....	.....	.....	.....	.....	.....	.....
University Hospitals ^{2,4}	Minneapolis	H. W. Wolftman	2,837	.....	253	42	1	.....	9-24	75.00
Mayo Foundation ²	Rochester, Minn.	G. H. Freeman	2,536	12	232	46	4	7/1	9-24	100.00
St. Peter State Hospital ²	St. Peter, Minn.	C. C. Ault	841	677	28	17	1	.....	9-24	50.00
State Hospital No. 1 ²	Fulton, Mo.	E. T. Gibson	3,053	.....	228	48	4	.....	9-36	100.00
Kansas City General Hospital ^{2,4}	Kansas City, Mo.	F. A. Carmichael	268	3,155	0	.....	3	7/1	9-24	25.00
State Hospital No. 2 ²	St. Joseph, Mo.	E. F. Gliden	3,926	.....	191	66	6	.....	9	135.00
Barnes Hospital ^{2,4}	St. Louis	W. L. Moore	.....	.....	.....	.....	.....	.....	9	.....
City Sanitarium ^{2,4}	St. Louis	E. F. Gliden	1,492	.....	97	50	3	7/1	9	80.00
Homer G. Phillips Hospital ²	St. Louis	E. F. Gliden	535	75	17	3	12	7/1	9	125.00
St. Louis City Hospital ^{2,4}	St. Louis	F. E. Kubitschek	1,700	.....	125	48	12	.....	9	.....
St. Vincent's Sanitarium ¹	St. Louis	O. W. Everett	.....	.....	.....	.....	.....	.....	.....	.....
Hastings State Hospital ^{2,4}	Ingleside, Neb.	G. E. Charlton and	.....	.....	.....	.....	.....	.....	.....	.....
Norfolk State Hospital ²	Norfolk, Neb.	E. E. Pate	1,324	110	83	0	5	.....	9-12	160.00
Bishop Clarkson Memorial Hospital ²	Omaha	A. E. Bennett	468	403	19	14	1	1/1	9-12	100.00
New Hampshire State Hospital ²	Concord, N. H.	C. H. Dolloff	3,284	.....	239	73	1	.....	9-12	75.00
New Jersey State Hospital ^{2,4}	Greystone Park, N. J.	M. A. Curry	6,935	.....	645	103	7	Varies	Varies	176.00
New Jersey State Hospital ^{2,4}	Marlboro, N. J.	B. B. Gordon	3,636	1,002	303	131	1	Varies	9-12	70.00
New Jersey State Hospital ²	Trouton, N. Y.	J. B. Spradley	3,850	.....	321	47	2	.....	9-12	100.00
Albany Hospital ^{2,4}	Albany, N. Y.	S. E. Barrera	1,198	1,533	63	26	5	7/1	9-12	25.00
Hillside Hospital ^{2,4}	Bellerose, N. Y.	I. Silbermann	208	1,700	1	.....	7	Varies	9	150.00
Binghamton State Hospital ^{2,4}	Binghamton, N. Y.	H. S. Gregory	3,360	.....	255	9	3	.....	9	.....
Poughkeepsie State Hospital ^{2,4}	Brentwood, N. Y.	H. J. Worthington	11,262	.....	512	185	20	.....	9	225.00
Brooklyn State Hospital ²	Brooklyn	C. H. Bellinger	6,691	.....	1,192	149	12	.....	9	.....
Buffalo State Hospital ^{2,4}	Buffalo	C. Fletcher	3,588	1,920	306	46	4	.....	9	.....
Edward J. Meyer Memorial Hospital ^{2,4}	Buffalo	A. L. Ulrich	1,295	545	72	18	3	7/1	9-36	59.00
Central Islip State Hospital ^{2,4}	Central Islip, N. Y.	D. Corcoran	8,455	2,991	534	193	9	.....	9	208.50
Gowanda State Homeopathic Hospital ²	Helmuth, N. Y.	E. V. Gray	2,693	.....	259	42	6	.....	9	.....
Kings Park State Hospital ²	Kings Park, N. Y.	A. E. Soper	7,819	1,782	483	107	4	.....	9	100.00
Marcy State Hospital ²	Marcy, N. Y.	G. L. Warner	3,018	.....	247	16	4	.....	9-12	225.00
Middletown State Homeopathic Hospital ^{2,4}	Middletown, N. Y.	W. A. Schmitz	3,857	919	262	85	4	Varies	9-36	25.00
Bellerue Hospital, Div. III—N. Y. Univ. ^{2,4}	New York City	S. B. Wortis	29,558	8,803	874	526	246	Varies	Varies	.....
Manhattan State Hospital ²	New York City	J. H. Travis	6,249	.....	1,225	262	4	.....	Varies	.....
New York Hospital ^{2,4}	New York City	O. Diethelm	293	4,634	0	.....	16	7/1	9-36	50.00
New York State Psychiatric Institute and Hospital ^{2,4}	New York City	I. H. MacKinnon	431	1,129	0	.....	9	1/1, 7/1	9-24	23.25
U. S. Marine Hospital ^{2,4}	New York City	S. D. Vestermarck	.....	.....	.....	.....	.....	.....	.....	.....
St. Lawrence State Hospital ^{2,4}	Ogdensburg, N. Y.	J. A. Pritchard	2,400	.....	179	29	3	Varies	Varies	150.00
Rockland State Hospital ^{2,4}	Orangeburg, N. Y.	R. E. Blaisdell	7,262	.....	369	156	12	.....	Varies	150.00
Hudson River State Hospital ^{2,4}	Poughkeepsie, N. Y.	J. R. Ross	5,104	395	501	145	2	Varies	9	225.00
Creedmoor State Hospital ²	Queens Village, N. Y.	H. A. La Burt	6,122	2,767	301	94	3	Varies	Varies	225.00
Rochester State Hospital ^{2,4}	Rochester, N. Y.	J. L. Van De Mark	4,747	.....	329	16	3	.....	9	150.00
Strong Memorial and Rochester Municipal Hospitals ^{2,4}	Rochester, N. Y.	R. Jaenike	524	625	.....	.....	1	7/1	9-12	125.00
Syracuse Psychopathic Hospital ²	Syracuse, N. Y.	H. A. Steckel	590	995	16	.....	1	7/1	9-36	212.00
Utica State Hospital ^{2,4}	Utica, N. Y.	W. E. Merriam	2,596	133	293	18	2	Varies	9	208.25
Grasslands Hospital ^{2,4}	Valhalla, N. Y.	J. G. Lynn	1,213	916	52	21	6	Varies	Varies	117.50
New York Hospital-Westchester Division ^{2,4}	White Plains, N. Y.	C. O. Cheney	692	.....	11	4	6	7/1	9-18	125.00
Harlem Valley State Hospital ^{2,4}	Wingdale, N. Y.	A. M. Stanley	5,415	1,658	262	68	3	Varies	9-12	208.25
Duke Hospital ^{2,4}	Durham, N. C.	R. S. Lyman	311	2,148	5	3	10	Varies	9	83.25
Cincinnati General Hospital ^{2,4}	Cincinnati	J. Romano	920	679	29	16	11	7/1	9-24	.....
Longview State Hospital ^{2,4}	Cincinnati	E. A. Baber	2,283	.....	177	35	3	.....	9	.....
City Hospital ^{2,4}	Cleveland	L. J. Karnosh	568	1,311	32	13	4	.....	9	25.00
Columbus State Hospital ²	Columbus, O.	J. F. Bateman	2,700	1,599	185	51	2	.....	9	.....
Massillon State Hospital ^{2,4}	Massillon, O.	A. G. Hyde	3,228	744	281	71	3	1/1, 7/1	9-12	100.00
Harding Sanitarium ¹	Worthington, O.	G. T. Harding	250	.....	6	0	3	7/1	9-36	150.00
Oregon State Hospital ²	Salem, Ore.	J. C. Evans	3,798	.....	371	53	2	.....	9	.....
Danville State Hospital ²	Danville, Pa.	E. L. Sielke	2,831	1,792	196	21	3	.....	9	50.00
Harrisburg State Hospital ^{2,4}	Harrisburg, Pa.	H. K. Petry	2,895	.....	225	32	3	7/1	9	155.00
Norristown State Hospital ²	Norristown, Pa.	A. P. Noyes	5,093	.....	338	42	6	.....	9	161.00
Friends Hospital ^{2,4}	Philadelphia	T. L. Belmont	281	.....	26	8	2	7/1	9-24	150.00
Institute of the Pennsylvania Hospital ^{2,4}	Philadelphia	E. D. Bond	892	.....	2	0	5	Varies	9-24	200.00
Pennsylvania Hospital, Department for Mental and Nervous Diseases ^{2,4}	Philadelphia	E. D. Bond	575	.....	12	0	8	Varies	9-24	100.00
Philadelphia General Hospital ^{2,4}	Philadelphia	C. A. Zeller	4,099	.....	351	51	1	Varies	.....	91.25
Philadelphia State Hospital ^{2,4}	Philadelphia	.....	7,152	.....	535	51	3	.....	6	.....
Temple University Hospital ^{2,4}	Philadelphia	.....	176	225	13	3	1	7/1	9-36	52.00
St. Francis Hospital ^{2,4}	Pittsburgh	.....	3,012	255	56	14	3	10/1	9-36	80.00
Western State Psychiatric Institute and Clinic ^{2,4}	Pittsburgh	G. B. Pearson	210	.....	2	1	4	.....	9	.....
Warren State Hospital ^{2,4}	Warren, Pa.	R. H. Israel	3,129	.....	299	16	6	1/1, 6/1	9-36	185.00
State Hospital for Mental Disease ^{2,4}	Howard, R. I.	J. F. Rezan	3,512	.....	356	51	6	Varies	9-36	150.00
Butler Hospital ^{2,4}	Providence, R. I.	H. B. Buggles	250	.....	24	1	5	1/1, 7/1	9-12	70.00
Charles V. Chapin Hospital ^{2,4}	Providence, R. I.	J. J. McCaffrey	715	629	17	1	1	10/1	9-12	109.00
U. S. Public Health Service Hospital ²	Ft. Worth, Tex.	C. R. Chaffin	1,629	.....	11	5	.....	.....	9	.....
John Sealy Hospital ^{2,4}	Galveston, Tex.	T. H. Harris	1,178	1,645	39	15	3	Varies	9	50.00
University of Virginia Hospital ^{2,4}	Charlottesville, Va.	D. C. Wilcox	413	1,437	6	2	8	7/1	9	50.00
Medical College of Virginia, Hosp. Div. ^{2,4}	Richmond, Va.	R. F. Gayle	370	.....	15	1	2	7/1	9	57.50
Western State Hospital ^{2,4}	Ft. Steilacoom, Wash.	R. H. Rea	2,617	.....	299	121	6	7/1	9-36	200.00
Eastern State Hospital ^{2,4}	Medical Lake, Wash.	H. A. Perry	2,509	219	183	5	3	7/1	9-24	125.00
Northern State Hospital ^{2,4}	Sedro Woolley, Wash.	J. W. Doughty	2,613	.....	159	105	2	.....	9	160.00
State of Wisconsin General Hospital ^{2,4,5}	Madison, Wis.	H. H. Reese	1,201	277	21	12	3	.....	9-36	25.00
Milwaukee County Hosp. for Mental Dis. ^{2,4}	Milwaukee	M. Kaeck	1,223	153	27	8	9	1/1	9-36	50.00
Milwaukee Sanitarium ^{2,4}	Wauwatosa, Wis.	J. A. Kindwall	473	.....	8	1	2	7/1	9-36	120.00
Queen's Hospital ^{2,4}	Honolulu, Hawaii	W. Shanahan	899	.....	4	4	1	7/1	9-18	150.00

Hospitals, 139; Assistant Residencies and Residencies, 622

19. RADIOLOGY

The following services are approved by the Council and the American Board of Radiology
(See footnotes 1, 2 and 3)

Name of Hospital	Location	Chief of Service	Type of Training ¹²	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residencies ⁸	Beginning of Service (1945)	Length of Service (Months)	Beginning of Stipend (Month)
Los Angeles County Hospital ^{3,4}	Los Angeles	R. A. Carter	Rad.	41,078	6,558	358	88	3	Varies	9-36	\$157.20
St. Vincent's Hospital ^{2,3}	Los Angeles	K. S. Davis	Rad.	6,518	1,004	14	30	1	9	9	9
White Memorial Hospital ³	Los Angeles	W. S. Stilson	Rad.	12,616	6,287	281	43	2	7/1	9-12	116.00
Orange County General Hospital ^{2,3}	Orange, Calif.	W. Saul	Roent.	3,778	354	.....	32	1	7/1	9-24	9
Mount Zion Hospital ^{2,3}	San Francisco	H. B. Weyrauch	Roent.	3,276	503	5	28	1	9-18	75.00	9
San Francisco Hospital ^{2,3,4}	San Francisco	L. Bryan	Rad.	30,218	1,611	27	33	4	Varies	9	115.00
Stanford University Hospitals ^{3,4}	San Francisco	R. R. Newell	Rad.	15,633	6,712	205	36	4	7/1	9	50.00
University of California Hospital ^{3,4}	San Francisco	E. R. Miller	Rad.	18,559	14,294	156	79	4	Varies	9-12	50.00
Veterans Administration Facility ³	W. Los Angeles	C. L. Lyons	Rad.	.....	.....	.....	.....	.....	.....	.....	.....
Colorado General Hospital ^{2,3}	Denver	E. A. Schmidt	Rad.	10,597	2,774	26	75	2	.....	9	.....
Hartford Hospital ^{2,3}	Hartford, Conn.	D. J. Roberts	Rad.	12,672	5,870	86	34	1	Varies	Varies	.....
New Haven Hospital ^{2,3,4}	New Haven, Conn.	H. Wilson	Rad.	23,959	3,500	51	69	4	.....	9	.....
Garfield Memorial Hospital ^{2,3,4}	Washington, D. C.	E. A. Merritt	Rad.	7,018	1,752	.....	54	2	.....	9-12	75.00
Georgetown University Hospital ^{2,3}	Washington, D. C.	F. O. Coe	Rad.	6,154	3,893	43	38	2	7/1	9-24	75.00
Sibley Memorial Hospital ^{2,3}	Washington, D. C.	W. M. Clopton	Rad.	6,655	1,137	29	51	1	.....	9-12	75.00
Veterans Administration Facility ²	Washington, D. C.	S. R. Bersack	Rad.	.....	.....	.....	.....	.....	.....	.....	.....
Walter Reed General Hospital ^{2,3}	Washington, D. C.	.....	Rad.	.....	.....	.....	.....	.....	.....	.....	.....
James M. Jackson Memorial Hospital ^{2,3}	Miami, Fla.	J. J. Jares	Rad.	12,416	5,278	52	21	1	.....	9	.....
Grady Memorial Hospital ^{2,3}	Atlanta, Ga.	G. R. Hrdlicka and H. S. Weens	Roent.	19,609	373	0	33	1	7/1	9	20.00
Piedmont Hospital ^{2,3}	Atlanta, Ga.	G. R. Hrdlicka	Rad.	3,388	1,018	.....	48	1	.....	9	.....
Cook County Hospital ^{2,3,4}	Chicago	G. A. Landau	Rad.	33,579	25,883	127	21	4	.....	9	.....
Michael Reese Hospital ^{2,3,4}	Chicago	R. A. Arens	Rad.	23,383	6,204	1,300	56	2	.....	9-36	50.00
Mount Sinai Hospital ^{2,3}	Chicago	J. Arendt	Roent.	5,992	2,186	.....	33	2	.....	9	100.00
Passavant Memorial Hospital ^{2,3,4}	Chicago	J. T. Case	Rad.	5,732	971	.....	66	2	.....	9-36	50.00
Presbyterian Hospital ^{2,3}	Chicago	F. H. Squire	Rad.	15,411	5,855	38	63	2	1/1, 7/1	9	50.00
Provident Hospital ^{2,3,4}	Chicago	B. W. Anthony	Rad.	5,460	817	15	50	1	1/1	9-36	55.00
Research and Educational Hospitals ^{2,3,4}	Chicago	T. J. Wachowski	Rad.	9,761	10,400	200	93	3	.....	9-36	25.00
St. Luke's Hospital ^{2,3}	Chicago	E. L. Jenkinson	Rad.	17,578	4,797	23	67	5	7/1	9-36	25.00
University of Chicago Clinics ^{2,3}	Chicago	P. C. Hodges	Rad.	20,858	6,833	69	73	5	Varies	9-12	25.00
Wesley Memorial Hospital ^{2,3,4}	Chicago	F. L. Hussey	Rad.	15,060 ^b	1,658 ^b	.....	56	1	1/1	9	100.00
Evanston Hospital ^{2,3}	Evanston, Ill.	R. G. Willy	Rad.	10,019	210	0	82	1	.....	9	.....
Veterans Administration Facility ³	Hines, Ill.	C. W. McClannahan and H. Slobodkin	Rad.	.....	.....	.....	.....	.....	.....	.....	.....
St. Francis Hospital ^{2,3,4}	Peoria, Ill.	P. R. Dirks	Rad.	6,694	2,638	11	38	1	1/1	9-24	150.00
St. Margaret Hospital ^{2,3}	Hammond, Ind.	C. W. Rauschenbach	Roent.	5,719	579	17	11	1	2/15	9-36	150.00
Indianapolis City Hospital ^{2,3}	Indianapolis	J. A. Campbell	Rad.	11,215	2,619	54	28	2	4/1	9-60	30.00
Indiana University Medical Center ^{2,3,4}	Indianapolis	A. P. Ebertnach	Rad.	10,927	7,404	76	46	3	.....	9-36	33.00
Methodist Hospital ^{2,3}	Indianapolis	H. C. Ochsner	Rad.	14,299	4,106	.....	29	2	.....	9-18	80.00
University Hospitals ^{2,3,4}	Indianapolis	H. C. Ochsner	Rad.	23,085	17,566	109	42	9	7/1	9	25.00
University of Kansas	.....	H. D. Kerr	Rad.	25,703	6,603	220	49	2	.....	9-36	50.00
Charity Hospital of	.....	G. M. Tice	Rad.	56,800	15,739	390	36	6	Varies	9-36	60.00
Southern Baptist Hos.	.....	L. Menville	Rad.	8,042	401	.....	17	1	.....	9	.....
Touro Infirmary ^{2,3}	New Orleans	M. D. Magruder	Rad.	14,400	6,000	65	61	1	.....	9	50.00
Shreveport Charity Hospital ^{2,3,4}	Shreveport, La.	L. D. Teitelbaum	Roent.	4,680	7,119	60	50	2	7/1	9-36	60.00
Johns Hopkins Hospital ^{2,3,4}	Baltimore	G. W. Riley	Rad.	110,241	8,572	125	67	5	7/1	9	.....
University Hospital ^{2,3,4}	Baltimore	J. W. Pierson	Rad.	19,954	4,371	221	62	3	7/1	9	50.00
Beth Israel Hospital ^{2,3}	Boston	S. A. Robins	Rad.	10,066	2,424	14	51	2	.....	9	.....
Boston City Hospital ^{2,3,4}	Boston	P. A.	Rad.	51,329	4,045	81	22	4	7/1	9	50.00 ^c
Children's Hospital ^{2,3,4}	Boston	P. A.	Rad.	12,460	840	.....	93	1	.....	9	.....
Joseph H. Pratt Diagnostic Hospital ²	Boston	A.	Rad.	9,701	1,505	.....	.....	.....	.....	9	.....
Lahey Clinic ²	Boston	.....	Rad.	28,478 ^b	9,800 ^b	.....	.....	.....	.....	9	.....
Massachusetts ..	Boston	.....	Rad.	9,321	2,672	60	72	3	7/1	9	.....
Massachusetts ..	Boston	.....	Rad.	7,014 ^b	4,925 ^b	271 ^b	48	1	.....	9	.....
New England	Boston	.....	Rad.	29,085	2,846	260	75	2	.....	9	.....
Peter Bent Br.	Boston	.....	Rad.	6,228 ^b	.....	.....	21	1	.....	9	.....
Newton-Wellesley Hospital ^{2,3}	Newton, Mass.	C. R. Liebman	Roent.	49,404	14,954	246	64	6	Varies	9	100.85
University Hospital ^{2,3,4}	Ann Arbor, Mich.	F. J. Hodges	Rad.	27,927	.....	.....	41	2	.....	9	.....
City of Detroit Receiving Hospital ^{2,3,4}	Detroit	I. D. Harris	Roent.	10,749	4,459	22	30	2	7/1	9-36	125.00
Grace Hospital ^{2,3}	Detroit	R. H. Stevens	Rad.	16,000 ^b	1,403 ^b	340 ^b	44	3	.....	9	.....
Harper Hospital ^{2,3,4}	Detroit	L. Reynolds	Rad.	38,725	4,087	258	56	4	7/1	9-36	175.00
Henry Ford Hospital ^{2,3,4}	Detroit	H. P. Doub	Rad.	8,067	4,133	50	52	3	.....	9	.....
St. Mary's Hospital ^{2,3}	Detroit	F. C. Jewell	Rad.	15,636	4,172	39	33	1	.....	9	.....
Hurley Hospital ^{2,3}	Flint, Mich.	M. W. Clift	Rad.	6,511	2,909	29	67	1	7/1	9-12	75.00
St. Mary's Hospital ^{2,3}	Duluth, Minn.	J. R. McNutt	Rad.	26,121	10,029	561	80	3	7/1	9-36	91.50
University Hospitals ^{2,3,4}	Minneapolis	L. G. Rigler	Rad.	164,201 ^b	18,925 ^b	3,000 ^b	78 ^b	15	(See page 405)	9-36	100.00
Mayo Foundation ²	Rochester, Minn.	B. R. Kirklin	Rad.	48,354	1,932	375	44	3	1/1, 10/1	9-36	100.00
Research Hospital ^{2,3}	Kansas City, Mo.	I.	Rad.	7,025	2,890	675	32	1	Varies	9	75.00
St. Joseph Hospital ^{2,3,4}	Kansas City, Mo.	C.	Rad.	20,733	10,470	81	66	3	.....	9	80.00
Barnes Hospital ^{2,3}	St. Louis	S.	Rad.	20,895	1,190	57	23	1	.....	9	80.00
Homer G. Phillips Hospital ^{2,3}	St. Louis	E.	Rad.	33,079	1,599	195	50	3	7/1	9	.....
St. Louis City Hospital ^{2,3,4}	St. Louis	O. C. Zink	Rad.	4,892	1,740	149	40	1	.....	9	.....
St. Luke's Hospital ^{2,3}	St. Louis	J. F. Kelly	Rad.	11,357	1,210	92	45	1	.....	9	.....
Creighton Memorial St. Joseph's Hosp. ^{2,3,4}	Omaha	H. B. Hunt	Rad.	4,500	2,055	103	93	2	.....	9	.....
University of Nebraska Hospital ^{2,3}	Omaha	L. K. Symamore	Rad.	9,992 ^b	3,212 ^b	25 ^b	79	1	.....	9-24	100.00
Mary Hitchcock Memorial Hospital ^{2,3}	Hanover, N. H.	N. J. Furst	Rad.	5,215	2,625	160	26	1	7/1	9	.....
Newark Beth Israel Hospital ^{2,3,4}	Newark, N. J.	J. Pepe	Rad.	6,692	1,597	.....	39	1	.....	9-16	25.00
Brooklyn Hospital ^{2,3,4}	Brooklyn	M. G. Wasch	Rad.	13,824	2,763	3	31	2	7/1	9	.....
Jewish Hospital ^{2,3,4}	Brooklyn	L. Harrington	D. R.	44,969	.....	.....	76	2	.....	9	.....
Kings County Hosp. ^{2,3,4} (D. R., Ther. Rad.)	Brooklyn	A. B. Friedmann	Ther. Rad.	.....	15,247	90	16	1	.....	9	.....
Long Island College Hospital ^{2,3,4}	Brooklyn	A. L. L. Bell	Rad.	13,495	3,648	87	39	4	7/1	9-36	25.00
Methodist Hospital ^{2,3}	Buffalo	J. Daversa	Rad.	15,442 ^b	1,306 ^b	63 ^b	21	1	.....	9	.....
Edward J. Meyer Memorial Hospital ^{2,3,4}	Hempstead, N. Y.	G. N. Scatbard	Rad.	10,333	2,330	16	32	3	7/1	9-36	50.00
Meadowbrook Hospital ^{2,3}	Jamaica, N. Y.	L. Carr	Rad.	4,717	3,143	14	36	1	.....	9	.....
Queens General Hospital ^{2,3,4}	New Rochelle, N. Y.	I. S. Startz	Rad.	19,630	7,467	28	55	2	7/1	9-24	110.00
New Rochelle Hospital ^{2,3}	New Rochelle, N. Y.	H.	Roent.	7,671	1,457	9	31	1	.....	9	.....
Bellevue Hospital, Div. III—N. Y. Univ. ^{2,3,4}	New York City	I. .....	.....	94,252	.....	.....	28	5	Varies	9-12	25.00
Bellevue Hospital, Div. IV—Open Div. ^{2,3,4}	New York City	L. .....	.....	5,429	117	26	32	3	7/1	9	50.00
Beth Israel Hospital ^{2,3,4}	New York City	A. .....	.....	2,605	1,942	.....	22	2	.....	9	.....
Broxh Hospital ^{2,3,4}	New York City	W. Snow	Rad.	.....	.....	.....	29	2	.....	9	.....
Flower and Fifth Avenue Hospitals ^{2,3,4}	New York City	F. Borrelli	Rad.	.....	.....	.....	32	1	.....	9-36	40.00
Goldwater Memorial Hospital ^{2,3,4}	New York City	H. K. Taylor	Roent.	9,008	1,465	0	27	1	Varies	7/1	100.00
Hospital for Joint Diseases ^{2,3,4}	New York City	M. M. Pomeranz	Rad.	10,565	1,751	0	36	1	.....	9	.....
Lenox Hill Hospital ^{2,3,4}	New York City	F. H. Gheslin	Rad.	13,517	1,955	10	36	1	.....	9	.....
Lincoln Hospital ^{2,3,4}	New York City	C. Gottlieb	Rad.	14,390	874	.....	28	1	.....	9	.....
Metropolitan Hospital ^{2,3,4}	New York City	T. B. Weinberg	Rad.	15,952	.....	.....	22	1	.....	9	50.00
Montefiore Hospital for Chronic Diseases ^{2,3,4}	New York City	S. Fineman	Rad.	7,765	5,604	41	45	3	1/1, 7/1	9	.....

19. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training ¹²	Röntgeno-graphic Ex-aminations	X-Ray Treatments	Radium Treatments	Autopsy Percentage	Asst. Res. and Residences ¹³	Beginning of Service (Yr)	Length of Ser-vice (Months)	Beginning of Residency (Month)
Morrisania City Hospital *2,4	New York City	S. Weitzner	Rad.	14,282	2,501	23	13	1	1/1, 7/1	9	.....
Mount Sinai Hospital *2,4	New York City	M. L. Sussman	Rad.	22,475	7,361	54	41	4	7/1	9-24	\$50.00
New York City Hospital *2	New York City	E. Kraft	D. R.	7,344	.....	.....	37	1	.....	9	110.00
New York Hospital *2,4	New York City	H. L. Temple	Rad.	40,551	7,368	.....	57	3	.....	9	.....
New York Polyclinic Medical School and Hospital *2	New York City	E. E. Smith	Rad.	6,133	2,381	18	15	1	7/1	9	25.00
New York Post-Graduate Medical School and Hospital *2	New York City	W. H. Meyer	Rad.	8,838	6,533	721	41	3	.....	9-24	30.00
Presbyterian Hospital *2,4	New York City	R. Golden	Rad.	50,666	20,416	167	63	6	.....	9	41.67
Roosevelt Hospital *2,4	New York City	W. H. Boone	Rad.	17,082	2,407	.....	27	3	.....	9-36	25.00
St. Luke's Hospital *2	New York City	E. J. Ryan and C. W. Breiner	Rad.	19,880	4,355	144	39	2	Varies	9-36	50.00
Genesee Hospital *2	Rochester, N. Y.	M. A. Almy	Roent.	4,780	1,273	.....	44	1	.....	9	.....
Strong Memorial and Rochester Municipal Hospitals *2,4	Rochester, N. Y.	G. H. Ramsey	Rad.	21,905	5,540	246	75	5	.....	9-45	125.00
Ellis Hospital *2,4	Schenectady, N. Y.	K. L. Mitton	Roent.	6,868	1,550	.....	27	1	.....	9	.....
Sea View Hospital *2,4	Staten Island, N. Y.	P. Slater	D. R.	14,902	.....	.....	8	1	1/1, 7/1	9	110.00
Grasslands Hospital *2,4	Valhalla, N. Y.	A. G. Debbie	Rad.	10,795	5,594	23	52	2	.....	9	.....
Charlotte Memorial Hospital *2,4	Charlotte, N. C.	A. Tuggle	Rad.	7,687	2,515	43	37	1	.....	9-36	75.00
Duke Hospital *2,4	Durham, N. C.	R. J. Reeres	Rad.	31,423	10,321	555	63	7	.....	9	.....
Watts Hospital *2	Durham, N. C.	W. W. Vaughan	Rad.	17,795	3,287	243	28	1	.....	9	.....
North Carolina Baptist Hospital *2,4	Winston-Salem, N. C.	J. P. Rousseau	Rad.	10,576	4,430	121	54	3	7/1	9	41.66
City Hospital *2	Akron, Ohio	E. W. Rowland	Rad.	12,979	7,935	11	31	2	.....	9	100.00
Cincinnati General Hospital *2	Cincinnati	H. G. Reinecke	Rad.	16,843	6,399	.....	35	7	7/1	9-45	.....
Jewish Hospital *2	Cincinnati	S. Brown	Rad.	6,723	1,175	52	30	1	.....	9	.....
City Hospital *2,4	Cleveland	H. Hauser	Rad.	24,000	8,000	.....	33	4	.....	9	.....
Cleveland Clinic Foundation Hospital *2	Cleveland	F. E. Templeton	Rad.	35,451	8,494	.....	37	6	.....	9	100.00
St. Luke's Hospital *2	Cleveland	R. J. May	Rad.	13,159	2,256	103	33	3	7/1	9-36	50.00
St. Vincent Charity Hospital *2	Cleveland	J. R. Andrews	Rad.	3,866	932	6	30	1	.....	9	.....
University Hospitals *2,4	Cleveland	H. Hauser	Rad.	20,833	3,775	171	62	2	7/1	9	.....
University Hospitals *2	Oklahoma City	J. E. Heatley	Rad.	16,739	11,356	.....	40	1	.....	9	.....
Good Samaritan Hospital *2	Portland, Ore.	B. Isehart	Rad.	7,169	1,195	80	41	1	.....	9	.....
St. Vincent's Hospital *2	Portland, Ore.	S. E. Rees	Rad.	7,239	1,746	.....	35	1	.....	9	.....
University of Oregon Medical School Hospi-tals and Clinics *2,4	Portland, Ore.	W. Y. Burton	Rad.	19,257	1,487	27	55	3	7/1	9	75.00
Ablington Memorial Hospital *2	Ablington, Pa.	J. D. Zulick	Rad.	10,977	2,466	.....	35	1	.....	9	.....
Bryn Mawr Hospital *2	Bryn Mawr, Pa.	R. S. Bromer	Rad.	12,068	3,183	126	36	2	7/1	9	50.00
Graduate Hospital of the University of Pennsylvania *2	Philadelphia	A. Finkelstein	Rad.	9,584	3,779	50	34	2	7/1	9-24	.....
Hahnemann Hospital *2,4	Philadelphia	N. V. Ludwick	Rad.	10,266	3,177	446	45	2	.....	9	.....
Hospital of the Protestant Episcopal Church *2,4	Philadelphia	D. A. Sampson	Roent.	9,008	1,853	22	45	1	.....	9	.....
Hosp. of the University of Pennsylvania *2,4	Philadelphia	E. P. Pendergrass	Rad.	9,500 ^b	3,883 ^b	40 ^b	75	12	.....	9	.....
Jeunes Hospital *2	Philadelphia	G. Bird	Ther. Rad.	1,300 ^b	1,005 ^b	47 ^b	65	1	.....	9	.....
Jefferson Medical College Hospital *2	Philadelphia	P. C. Swenson	Rad.	23,072	.....	1,620	63	4	1/1	9	25.00
Jewish Hospital *2,4	Philadelphia	L. Solis-Cohen	Rad.	6,703	524	156	63	1	.....	9	.....
Mount Sinai Hospital *2,4	Philadelphia	L. Edgiken and G. Rosenbaum	Rad.	7,947 ^b	6,95 ^b	74 ^b	56	1	.....	9	.....
Pennsylvania Hospital *2	Philadelphia	P. A. Bishop	Rad.	7,432	1,435	153	46	1	7/1	9-15	20.00
Philadelphia General Hospital *2,4	Philadelphia	B. P. Widmann	Rad.	16,817	3,482	11,264	52	1	Varies	9	93.33
Presbyterian Hospital *2	Philadelphia	J. H. Yastine	Rad.	7,324 ^b	5,227 ^b	70 ^b	71	1	.....	9	.....
Temple University Hospital *2,4	Philadelphia	W. E. Chamberlain	Rad.	19,123 ^b	4,181 ^b	130 ^b	43	3	.....	9	.....
Elizabeth Strel Magee Hospital *2,4	Pittsburgh	S. G. Henderson	Rad.	4,265	2,377	64	21	2	10/1	9-36	100.00
Mercy Hospital *2,4	Pittsburgh	H. N. Mawhinney	Rad.	14,502	6,854	171	25	1	.....	9	.....
Montefiore Hospital *2	Pittsburgh	M. F. Goldsmith	Rad.	5,816	1,010	.....	50	1	.....	9	.....
Western Pennsylvania Hospital *2,4	Pittsburgh	R. G. Alley and L. Freedman	Rad.	9,077	3,001	99	23	1	.....	9-24	100.00
Robert Packer Hospital *2	Sayre, Pa.	J. W. Settle Jr.	Rad.	8,695	3,380	66	34	1	.....	9	.....
Roper Hospital *2	Charleston, S. C.	H. Rudisill Jr.	Rad.	9,027	2,882	37	44	2	.....	9	.....
Baptist Memorial Hospital *2	Memphis, Tenn.	J. E. Whiteclather	Rad.	8,957	4,288	512	15	3	.....	9-36	25.00
John Gaston Hospital *2	Memphis, Tenn.	H. Curl	Rad.	13,990	2,339	50	40	3	.....	9	.....
Methodist Hospital *2	Memphis, Tenn.	S. W. Coley	Rad.	8,957	3,217	17	21	1	.....	9	.....
Vanderbilt University Hospital *2,4	Nashville, Tenn.	C. C. McClure	Rad.	11,206	2,904	.....	61	1	.....	9	.....
Baylor University Hospital *2,4	Dallas, Tex.	A. Seede	Rad.	6,943	1,894	52	23	2	.....	9	.....
Parkland Hospital *2,4	Dallas, Tex.	A. J. McIlwain	Rad.	13,574	1,923	66	24	1	.....	9	.....
John Sealy Hospital *2,4	Galveston, Tex.	J. B. Johnson	Rad.	12,245	1,781	.....	50	2	Varies	9	50.00
Scott and White Hospital *2	Temple, Tex.	C. A. Stevenson	Rad.	30,370	4,370	236	34	2	.....	9	.....
Mary Fletcher Hospital *2,4	Burlington, Vt.	O. S. Peterson Jr.	Rad.	4,244	3,468	73	44	2	7/1	9-12	50.00
University of Virginia Hospital *2,4	Charlottesville, Va.	V. W. Archer	Rad.	20,279	3,474	.....	42	9	7/1	9	42.00
Medical College of Virginia, Hosp. Div. *2,4	Richmond, Va.	F. B. Mandeville	Rad.	14,553	3,660	170	34	1	.....	9	37.50
Virginia Mason Hospital *2	Seattle, Wash.	T. B. Carlie	Rad.	7,400	1,050	40	26	1	7/1	9-15	100.00
State of Wisconsin General Hospital *2,4	Madison, Wis.	E. A. Pohle	Rad.	27,219	9,325	100	67	5	7/1	9-36	25.00
Columbia Hospital *2,4	Milwaukee	S. A. Morton	Rad.	18,449	3,275	104	48	1	7/1	9-15	50.00

Hospitals, 157; Assistant Residences and Residences, 374

20. SURGERY

Army Air Forces Hospitals

The following hospitals of the Army Air Forces have been approved by the Council as offering acceptable residencies in Surgery for a period not to exceed one year. Residency assignments are available to medical officers for periods of six to twelve months.

Regional Hospital	Maxwell Field	Montgomery, Ala.	Regional Hospital	Barksdale Field	Shreveport, La.
Regional Hospital	Davis-Monthan Field	Tucson, Ariz.	Regional Hospital	Westover Field	Chicopee Falls, Mass.
Regional Hospital	Hammer Field	Fresno, Calif.	Regional Hospital	Keesler Field	Biloxi, Miss.
Regional Hospital	Hamilton Field	San Rafael, Calif.	Regional Hospital	Army Air Field	Lincoln, Neb.
Regional and Convalescent Hospital	Army Air Base	Santa Ana, Calif.	Regional Hospital	Mitchell Field	Hampton, N. Y.
Regional Hospital	Buckley Field	Denver, Colo.	Regional Hospital	Patterson Field	Fairfield, O.
Regional and Convalescent Hospital			Regional Hospital	Army Air Field	Sioux Falls, S. D.
Regional Hospital	Miami District	Miami Beach, Fla.	Regional Hospital	Army Air Field	Amarillo, Tex.
Regional Hospital	Army Air Base	Orlando, Fla.	Regional Hospital	Army Air Field	Prote, Tex.
Regional Hospital	Drew Field	Tampa, Fla.	Regional Hospital	Aviation Cadet Center	San Antonio, Tex.
Regional Hospital	Hunter Field	Savannah, Ga.	Regional Hospital	Sheppard Field	Wichita Falls, Tex.
Regional Hospital	Scott Field	Belleville, Ill.	Regional Hospital	Kearns ORD	Kearns, Utah
Regional Hospital	Chanute Field	Rantoul, Ill.	Regional Hospital	Lansley Field	Hampton, Va.
Navy Hospitals			Regional Hospital	Trux Field	Madison, Wis.

U. S. Naval Hospital *.....Annapolis, Md. U. S. Naval Hospital *.....Bethesda, Md. U. S. Naval Hospital *.....Philadelphia

20. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residences	Beginning of Service (1915)	Length of Service (Months)	Beginning Stipend (Monthly)
Jefferson and Hillman Hospitals *	Birmingham, Ala.	D. S. Moore	1,070	3,607	80	19	4	1/1, 7/1	9-12	\$50.00
Norwood Hospital *	Birmingham, Ala.	C. N. Carraway and D. F. Talley	899	9,453	9	2	3	.....	9	150.00
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company *	Fairfield, Ala.	L. Noland	1,051	10,168	11	..	2	1/1	9-12	200.00
Baptist State Hospital *	Little Rock, Ark.	R. M. Eubanks	4,382	..	107	34	4	1/1	9-12	125.00
General Hospital of Fresno County *	Fresno, Calif.	C. M. Vanderburgh	551	2,092	36	6	4	7/1	9-12	100.00
California Hospital *	Los Angeles	W. H. Olds	2,870	281	86	36	3	10/1	9	100.00
Cedars of Lebanon Hospital *	Los Angeles	L. Felger	5,411	3,218	136	66	2	7/1	9-42	157.20
Los Angeles County Hospital *	Los Angeles	J. N. Nichols	3,534	9,488	326	125	7	Varies	9-12	175.00
Santa Fe Coast Lines Hospital *	Los Angeles	..	1,170	..	16	5	2	7/1	9-12	116.00
White Memorial Hospital *	Los Angeles	G. Thomason	1,041	7,456	45	15	2	7/1	9-12	116.00
Highland-Alameda County Hospital *	Oakland, Calif.	D. N. Richards and W. W. Crane	581	..	62	18	2	7/1	9	80.00
Permanente Foundation Hospital *	Oakland, Calif.	C. C. Cutting	2,502	30,546	47	18	3	Varies	9	125.00
San Bernardino County Charity Hospital *	San Bernardino, Calif.	C. G. Hilliard	592	2,630	61	25	1	7/1	9-12	100.00
San Diego County General Hospital *	San Diego, Calif.	C. O. Tanner	1,869	3,343	169	24	2	7/1, 10/1	9-12	164.00
Children's Hospital *	San Francisco	A. Kilgore	502	875	..	..	2	.....	9	..
Franklin Hospital *	San Francisco	T. F. Mullen	1,316	..	20	7	4	7/1	9-12	100.00
Mary's Help Hospital *	San Francisco	E. Carlson	1,829	3,350	30	7	1	7/1	9-18	75.00
Mount Zion Hospital *	San Francisco	F. I. Harris	2,030	1,404	53	22	3	7/1	9-12	225.00
St. Luke's Hospital *	San Francisco	A. Weeks	3,355	..	70	25	1	7/1	9-12	100.00
St. Mary's Hospital *	San Francisco	E. Butler	1,271	1,169	..	..	2	7/1	9-12	100.00
San Francisco Hospital *	San Francisco	L. Eloesser and H. Brann	1,458	..	91	26	10	Varies	9	115.00
Stanford University Hospitals *	San Francisco	F. L. Reichert	1,545	12,603	55	18	5	7/1	9-16	50.00
University of California Hospital *	San Francisco	H. C. Naffziger	1,584	9,792	29	17	6	Varies	9-12	30.00
Santa Clara County Hospital *	San Jose, Calif.	C. Sullivan	794	..	..	..	1	7/1	9-12	205.00
Santa Barbara Cottage Hospital *	Santa Barbara, Calif.	I. Wills	530	..	11	9	2	6/1	9-12	100.00
Colorado General Hospital *	Denver	..	1,154	5,436	51	54	2	7/1	9	60.00
St. Luke's Hospital *	Denver	H. R. McKeen	4,103	..	..	..	2	7/1	9	..
St. Francis Hospital *	Hartford, Conn.	..	5,215	..	50	19	2	Varies	9	..
Grace Hospital *	New Haven, Conn.	R. Nichols	1,479	722	53	17	4	Varies	9-24	50.00
Hospital of St. Raphael *	New Haven, Conn.	W. F. Verdi	1,865	648	95	25	2	Varies	9-12	..
New Haven Hospital *	New Haven, Conn.	S. Harvey	2,000	9,771	66	..	9	7/1	9	..
Memorial Hospital *	Wilmington, Del.	J. G. Spackman	1,020	1,542	28	14	3	4/1	9-12	10.00
Central Dispensary and Emergency Hosp. *	Washington, D. C.	J. F. Mitchell	3,189	651	77	26	4	1/1	9-60	..
Freedmen's Hospital *	Washington, D. C.	C. R. Drew	1,077	5,721	72	17	10	7/1	9	..
Gallinger Municipal Hospital *	Washington, D. C.	..	1,420	5,881	70	24	6	..	9	..
Garfield Memorial Hospital *	Washington, D. C.	H. H. Kerr	3,900	915	130	..	3	7/1	9	75.00
Georgetown University Hospital *	Washington, D. C.	F. Sanderson	1,175	915	42	19	4	7/1	9-12	75.00
Providence Hospital *	Washington, D. C.	F. Sanderson	3,005	1,133	43	17	3	..	9-12	75.00
Sibley Memorial Hospital *	Washington, D. C.	P. S. Putzki	..	..	61	12	3	7/1	9	125.00
Duval County Hospital *	Jacksonville, Fla.	E. Jelks	492	..	136	31	3	7/1	9	83.00
James M. Jackson Memorial Hospital *	Miami, Fla.	..	5,038	29,264	197	36	13	7/1	9	20.00
Grady Memorial Hospital *	Atlanta, Ga.	B. H. Clifton	3,250	1,450	17	4	2	7/1	9-36	125.00
St. Joseph's Infirmary *	Atlanta, Ga.	G. P. Huguley	1,953	..	10	5	10/1	9-18	55.00	
University Hospital *	Augusta, Ga.	G. F. Jones Jr.	3,003	2,301	128	10	5	7/1	9-12	50.00
Emory University Hospital *	Emory University, Ga.	L. Grove	12,698	692	26	6	2	7/1	9-12	25.00
Augustana Hospital *	Chicago	N. M. Percy	13,310	9,475	923	81	14	1/1, 7/1	9-36	25.00
Cook County Hospital *	Chicago	M. Davison	..	..	..	..	1	10/1	9-36	125.00
Grant Hospital *	Chicago	E. W. Fischmann	995	3,195	47	11	1	Varies	9-12	130.00
Illinois Masonic Hospital *	Chicago	R. B. Malcolm	2,758	4,143	120	51	2	10/1	9-26	75.00
Mercy Hospital-Loyola University Clinics *	Chicago	H. A. Oberhelman	3,031	3,614	94	55	6	Varies	9-36	25.00
Michael Reese Hospital *	Chicago	R. B. Bettman	2,429	2,306	35	16	2	..	9	..
Mount Sinai Hospital *	Chicago	..	2,985	..	28	11	1	7/1	9-12	150.00
Norwegian-American Hospital *	Chicago	G. T. Murphy	1,892	8,205	24	19	6	..	9	..
Passavant Memorial Hospital *	Chicago	L. Davis	2,237	857	38	23	3	1/1, 7/1	9-36	50.00
Hospitals *	Chicago	V. C. David	1,555	1,384	36	10	2	1/1	9	50.00
..	Chicago	U. G. Dailey	794	9,443	36	32	3	..	9-36	55.00
..	Chicago	W. B. Cole	1,543	1,006	26	8	1	1/1, 10/1	9	125.00
..	Chicago	H. McKenna	4,134	2,076	115	77	8	7/1	9-36	25.00
..	Chicago	C. G. Shearon	1,835	37,750	71	51	0	Varies	9-48	25.00
..	Chicago	D. B. Phemister	2,297	..	37	23	3	1/1	9-12	25.00
..	Chicago	R. W. McNealy	848	3,055	5	4	1	Varies	9-36	100.00
..	Chicago	P. M. Stetler	3,456	6,713	..	..	1	10/1	9	100.00
..	Chicago	F. Christopher	4,699	..	76	22	1	Varies	9-12	75.00
..	Evansville, Ill.	..	979	..	31	5	2	7/1, 10/1	9-12	100.00
Little Company of Mary Hospital *	Evergreen Park, Ill.	..	1,496	2,258	36	12	2	7/1	9-24	150.00
St. Francis Hospital *	Peoria, Ill.	..	1,269	6,632	80	23	2	4/1	9-60	30.00
Indianapolis City Hospital *	Indianapolis	..	1,835	4,885	85	43	5	..	9-36	33.00
Indiana University Medical Center *	Indianapolis	W. D. Gatch	4,773	..	..	..	3	7/1	9-18	80.00
Methodist Hospital *	Indianapolis	H. S. Leonard	2,698	..	75	28	1	..	9-18	150.00
Ball Memorial Hospital *	Muncie, Ind.	W. C. Moore	3,200	4,065	135	69	24	7/1	9	25.00
University Hospitals *	Iowa City	F. R. Peterson	756	3,205	39	23	4	..	9-36	50.00
University of Kansas Hospitals *	Kansas City, Kan.	T. G. Orr	2,871	..	94	28	1	6/1	9-18	150.00
St. Francis Hospital *	Wichita, Kan.	A. P. Gearhart	2,462	..	92	30	3	7/1	9	75.00
St. Joseph's Hospital *	Lexington, Ky.	..	1,504	13,051	124	27	15	7/1	9	75.00
St. Joseph's General Hospital *	Louisville, Ky.	H. H. Eagan	6,240	..	..	..	3	..	9-48	60.00
St. Joseph Infirmary *	Louisville, Ky.	I. Abell Sr.	6,418	30,780	400	133	27	Varies	9	50.00
St. Joseph Hospital of Louisiana *	New Orleans	L. Cohn	2,784	4,797	98	45	2	7/1	9-12	40.00
Charity Hospital *	New Orleans	T. B. Aycock	1,180	2,614	189	43	10	7/1	9	75.00
Touro Infirmary *	Baltimore	T. B. Aycock	972	543	14	6	4	7/1	9-12	30.00
Baltimore City Hospitals *	Baltimore	T. S. Cullen	3,167	1,021	59	23	4	10/1	9	100.00
Bon Secours Hospital *	Baltimore	E. S. Johnston	2,343	2,290	45	7	3	4/1	9	50.00
Church Home and Hospital *	Baltimore	W. Riehoff	1,745	1,632	14	2	3	7/1	9-48	..
Franklin Square Hospital *	Baltimore	A. Blalock	2,909	43,994	128	67	10	..	..	..
Hospital for Women *	Baltimore	W. J. Coleman and G. A. Bawden	2,359	1,870	66	7	4	..	9	..
Johns Hopkins Hospital *	Baltimore	W. D. Wise	611	300	..	..	2	1/1	9-60	50.00
Maryland General Hospital *	Baltimore	S. McLanahan	1,686	742	53	12	2	..	9	..
Mercy Hospital *	Baltimore	L. C. Cohn	2,402	4,041	91	10	5	7/1	9-36	50.00
Pro St. *	Baltimore	W. R. Geraghty	1,393	1,138	47	16	6	7/1	9-12	35.00
St. St. *	Baltimore	..	2,350	3,709	61	11	4	..	9	..
St. St. *	Baltimore	..	4,611	5,231	112	27	6	7/1	9-36	50.00
St. St. *	Baltimore	..	2,700	8,078	87	38	7	7/1	9	50.00
South Baltimore General Hospital *	Baltimore	A. M. Shipley	910	4,254	22	4	4	6/1	9-36	60.00
Union Memorial Hospital *	Baltimore	N. C. Marvel	1,495	2,679	51	33	2	..	9-36	..
University Hospital *	Baltimore	P. P. Johnson	4,034	7,513	77	41	2	7/1	9	41.60
West Baltimore General Hospital *	Beverly, Mass.	..	..	..	..	..	..	..	..	..
Beverly Hospital *	Boston	..	..	..	..	..	..	..	..	..
Beth Israel Hospital *	Boston	..	..	..	..	..	..	..	..	..

20. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residents	Beginning of Service (1916)	Length of Service (Months)	Beginning of Stipend (Month)
Boston City Hospital**	Boston	S. Fraser	10,340	55,764	535	49	9	7/1	9	\$50.00
Children's Hospital**	Boston	W. E. Ladd	1,576	11,929	46	39	4	.....	9	.....
Lahey Clinic	Boston	.....	.....	.....	.....	.....	16	.....	9	.....
Massachusetts General Hospital*	Boston	E. D. Churchill and A. W. Allen	3,157 ^a	21,094 ^b	103	71	19	.....	9	.....
Massachusetts Memorial Hospitals*	Boston	H. M. Clute	3,872	2,559	31	20	2	.....	9	.....
Peter Bent Brigham Hospital*	Boston	F. C. Newton	2,388	30,000	60	.....	9	Varies	Varies	.....
Cambridge Hospital**	Cambridge, Mass.	.....	1,336	1,601	36	16	1	7/1	9-24	100.00
Truesdale Hospital	Fall River, Mass.	.....	2,035	.....	39	20	1	.....	9	.....
Memorial Hospital*	Worcester, Mass.	B. H. Alton	2,824	310	43	19	1	.....	9	125.00
Worcester City Hospital*	Worcester, Mass.	B. F. Andrews	2,312	3,047	114	23	2	7/1	9	50.00
University Hospital**	Ann Arbor, Mich.	F. A. Collier	1,758	8,192	110	65	22	Varies	9	100.85
Alexander Blain Hospital*	Detroit	A. W. Blain and I. G. Downer	1,433	14,859	26	10	3	.....	9-48	200.00
Charles Godwin Jennings Hospital*	Detroit	H. K. Shawan and C. E. Vale	1,504	.....	15	3	1	7/1	9	200.00
City of Detroit Receiving Hospital**	Detroit	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grace Hospital*	Detroit	C. S. Kennedy	3,835	26,477	281	63	16	7/1	9-27	145.58
Harper Hospital**	Detroit	A. D. McAlpine	3,399	1,593	61	21	3	7/1	9-36	125.00
Henry Ford Hospital**	Detroit	R. D. McCure	8,976	.....	164	53	9	.....	8	.....
Mount Carmel Mercy Hospital*	Detroit	J. E. Watson	7,819	112,261	149	70	17	7/1	9-60	175.00
Providence Hospital*	Detroit	E. Dowdle	3,509	.....	58	23	4	.....	9	.....
St. Mary's Hospital*	Detroit	G. K. Glasgow	6,325	.....	106	56	4	.....	9-48	140.00
Eloise Hospital and Infirmary**	Eloise, Mich.	R. V. Walker	5,651	802	97	45	3	Varies	9-36	150.00
Hurley Hospital*	Flint, Mich.	.....	2,371	4,658	209	48	9	7/1	9-12	160.00
Blodgett Memorial Hospital*	Grand Rapids, Mich.	.....	1,610	.....	26	9	3	7/1	9	125.00
Butterworth Hospital**	Grand Rapids, Mich.	C. H. Snyder	1,010 ^b	.....	.....	.....	1	5/1, 7/1	9	150.00
St. Mary's Hospital*	Grand Rapids, Mich.	C. E. Sugg	6,261	.....	98	40	3	5/1	9	125.00
St. Mary's Hospital*	Duluth, Minn.	.....	3,618	330	123	40	2	7/1	9-12	75.00
Minneapolis General Hospital**	Minneapolis	A. A. Zierold	1,612	108	35	27	1	7/1	9-18	91.50
University Hospitals**	Minneapolis	O. H. Wangersteen	1,269	5,688	158	39	7	7/1	9-36	91.50
Mayo Foundation	Rochester	D. C. Balfour	1,154	8,107	77	60	6	7/1	9	.....
Ancker Hospital*	St. Paul	A. R. Colvin	(See page 403)	.....	.....	.....	135	.....	9-18	155.00
Charles T. Miller Hospital*	St. Paul	H. B. Zimmermann	1,125	2,072	77	63	3	7/1	9	.....
St. Louis County Hospital*	Clayton, Mo.	L. A. Will	1,872	2,023	.....	.....	2	7/1	9-18	60.00
Ellis Fischel State Cancer Hospital	Columbia, Mo.	E. D. Sugarbaker	1,105	10,250	100	36	4	7/1	9-24	50.00
Kansas City General Hospital*	Kansas City, Mo.	J. E. Stowers	1,555	5,349	49	35	4	7/1	9-36	50.00
Research Hospital*	Kansas City, Mo.	C. J. Hunt	914	2,751	65	48	2	Varies	9	100.00
St. Luke's Hospital*	Kansas City, Mo.	.....	1,028	.....	14	5	2	.....	9	.....
St. Mary's Hospital*	Kansas City, Mo.	M. J. Owens and J. R. McVay	4,275	.....	28	22	1	Varies	9-12	150.00
Barnes Hospital*	St. Louis	E. A. Graham	2,471	5,557	84	47	17	7/1	9-36	25.00
De Paul Hospital*	St. Louis	H. A. Hassett	1,079	264	82	10	2	7/1	9	60.00
Homer G. Phillips Hospital**	St. Louis	R. Elman	1,089	5,834	125	23	5	7/1	9	80.00
Jewish Hospital*	St. Louis	M. W. Myer	1,550	2,300	51	24	2	7/1	9	75.00
Missouri Baptist Hospital*	St. Louis	W. S. Wiatt	1,515	.....	.....	.....	2	7/1	9	70.00
St. Anthony's Hospital*	St. Louis	F. J. Tainter	3,276	.....	89	33	1	10/1	9	50.00
St. John's Hospital*	St. Louis	W. P. Glennon	2,850	1,420	100	24	2	6/1	9-24	40.00
St. Louis City Hospital**	St. Louis	P. Heinhecker	2,688	2,202	221	113	9	7/1	9	80.00
St. Luke's Hospital*	St. Louis	E. V. Mastin	2,202	.....	.....	.....	1	7/1	9	75.00
St. Mary's Group of Hospitals*	St. Louis	L. Rasseleur	2,357	7,173	122	52	9	7/1	9	55.00
Bishop Clarkson Memorial Hospital*	Omaha	C. H. Waters	2,632	.....	23	7	1	7/1	9-12	150.00
Creighton Memorial St. Joseph's Hospital**	Omaha	C. McMartin	1,146	2,085	65	30	1	7/1	9-24	100.00
University of Nebraska Hospital*	Omaha	.....	1,830	.....	36	35	1	.....	9	.....
Cooper Hospital*	Camden, N. J.	I. F. Delbert	452	17,501	171	48	2	7/1	9-36	60.00
West Jersey Homeopathic Hospital*	Camden, N. J.	H. W. Jack	1,783	2,811	69	14	1	7/1	9	150.00
Jersey City Hospital*	Jersey City, N. J.	E. Burke and F. B. Berry	1,501	4,415	226	27	6	Varies	9-36	35.00
Mountainside Hospital**	Montclair, N. J.	V. B. Seidler	4,415	22,600	212	27	6	7/1	9-18	100.00
Burlington County Hospital*	Mount Holly, N. J.	W. E. Lee	2,828	3,553	37	6	1	.....	9	.....
Albany Hospital**	Albany, N. Y.	J. L. Donhauser	1,006	1,239	29	7	1	.....	9-12	25.00
Brooklyn Hospital**	Brooklyn	E. K. Tanner	2,630	2,293	89	61	4	7/1	9-12	75.00
Coney Island Hospital**	Brooklyn	D. A. McAttee	2,206	3,251	40	23	2	5/1, 7/1	9	110.00
Cumberland Hospital**	Brooklyn	H. T. Wile	2,472	33,310	143	37	2	7/1	9	110.00
Greenpoint Hospital**	Brooklyn	J. Smith	2,333	16,941	35	13	2	7/1	9	110.00
Jewish Hospital**	Brooklyn	L. M. Davidoff	1,417	8,776	56	5	2	7/1	9	110.00
Kings County Hospital**	Brooklyn	J. Tenoppy and R. Barber	1,502	2,551	109	28	4	7/1	9-48	25.00
Long Island College Hospital**	Brooklyn	E. Goetsch	6,765	39,763	656	77	6	7/1	9-18	60.00
Norwegian Lutheran Deaconesses' Home and Hospital**	Brooklyn	L. Stork, R. W. Tate and D. Livingstone	2,298	8,711	47	9	4	7/1	9-72	25.00
St. Mary's Hospital**	Brooklyn	.....	1,628	1,135	.....	.....	1	10/1	9	.....
Buffalo General Hospital*	Buffalo	H. A. Smith	2,265	3,176	32	8	1	7/1	9-27	60.00
Deaconess Hospital*	Buffalo	.....	3,160	576	137	59	5	7/1	9-12	25.00
Edward J. Meyer Memorial Hospital**	Buffalo	J. C. Brady	3,728	1,341	67	39	1	7/1	9	125.00
Millard Fillmore Hospital*	Buffalo	H. Hoffman	1,488	3,235	145	44	7	7/1	9-60	50.00
Clifton Springs Sanitarium and Clinic	Clifton Springs, N. Y.	A. S. Taylor	2,720	.....	47	16	2	7/1	9-12	100.00
Mary Imogene Bassett Hospital*	Cooperstown, N. Y.	J. H. Powers	961	.....	13	9	2	7/1	9-36	50.00
Meadowbrook Hospital*	Hempstead, N. Y.	A. S. Warriner and C. A. Hettsheimer	.....	.....	.....	.....	1	10/1	9	.....
Mary Immaculate Hospital*	Jamaica, N. Y.	J. M. Seannell	861	.....	62	56	2	7/1	9	110.00
Queens General Hospital**	Jamaica, N. Y.	F. N. Denry	.....	1,368	67	52	2	7/1	9	110.00
Charles S. Wilson Memorial Hospital**	Johnson City, N. Y.	G. G. Moore	2,019	13,962	174	64	2	7/1	9-24	110.00
New Rochelle Hospital*	New Rochelle, N. Y.	F. C. Adie	2,688	.....	53	11	2	7/1	9-12	175.00
Bellevue Hospital, Div. I—Columbia U.**	New York City	C. J. McGuire	1,796	1,656	56	16	2	7/1	9	100.00
Bellevue Hospital, Div. II—Cornell U.**	New York City	G. Dudley	2,576	12,222	96	37	1	Varies	9-12	100.00
Bellevue Hospital, Div. III—N. Y. U.**	New York City	Arthur Wright	2,576	11,754	96	37	1	Varies	9-12	100.00
Bellevue Hospital, Div. IV—Open Div.**	New York City	A. McQuillan	2,514	2,628	121	40	4	Varies	9-12	25.00
Bronx Hospital*	New York City	.....	2,237	10,445	90	22	2	Varies	9-12	25.00
Flower and Fifth Avenue Hospitals**	New York City	L. R. Kaufman	2,065	2,566	54	12	2	.....	9	.....
Fordham Hospital**	New York City	A. Nicoll	1,729	2,661	82	21	4	.....	9-12	100.00
Gouverneur Hospital**	New York City	J. Girdlansky	.....	.....	.....	.....	4	7/1	9	60.00
Hospital for Special Surgery	New York City	C. G. Burdick	646	11,695	58	8	2	.....	9	60.00
Knickbocker Hospital*	New York City	J. V. Bohrer	1,790	5,790	22	10	4	1/1, 7/1	9-12	50.00
Lenox Hill Hospital**	New York City	.....	561	8,184	47	7	1	7/1	9-12	100.00
Metropolitan Hospital*	New York City	.....	2,095	.....	61	22	4	7/1	9	25.00
Montefiore Hospital for Chronic Diseases**	New York City	L. R. Kaufman	1,635	7,205	114	27	2	7/1	9-12	100.00
Morrison City Hospital**	New York City	.....	165	.....	21	17	4	1/1, 7/1	9-12	60.00
Mount Sinai Hospital**	New York City	G. E. Millard	1,628	5,920	83	17	3	7/1	9	20.00
New York City Hospital*	New York City	L. W. Crossman	.....	.....	.....	.....	11	1/1, 7/1	9-24	20.00
New York Hospital**	New York City	G. J. Heuer	1,541	7,579	124	25	2	7/1	9	60.00
.....	New York City	.....	5,131	5,292	51	28	25	7/1	9	25.00

Numerical and other references will be found on page 405.

20. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies*	Beginning of Service (1945)	Length of Service (Months)	Beginning Stipend (Month)
New York Infirmary for Women and Children**	New York City	A Hubert	578	2,199	0	4	2	1/1	9 12	\$75.00
New York Polyclinic Medical School and Hospital*	New York City		2,111	4,214	92	2	8	7/1	9	25.00
New York Post Graduate Medical School and Hospital**	New York City	T H Russell	2,778	9,974	94	41	20	1/1	9 36	30.00
Presbyterian Hospital**	New York City	A O Whipple	3,046	30,096	130	18	18		9	
Roosevelt Hospital*	New York City		2,904	9,330	135	33	6	7/1	9	
St Luke's Hospital*	New York City	* J Donovan	2,046	1,512	95	37	10	Varies	9 60	50.00
St Vincent's Hospital**	New York City	G R Stuart and R P Sullivan	3,033	7,618	191	69	4	7/1	9 18	25.00
Genesee Hospital*	Rochester, N Y	S Houck	2,833	2,811	54	10	2	7/1	9 12	100.00
Rochester General Hospital**	Rochester, N Y	H I Prince	2,706	4,665	70	52	4	7/1	9 36	75.00
St Mary's Hospital**	Rochester, N Y	I F Simpson	3,973	930	29	12	1	7/1	9 12	125.00
Strong Memorial and Rochester Municipal Hospitals**	Rochester, N Y	I J Morton	2,300	12,410	189	157	11	7/1	9 48	41.00
Hospital of the Good Shepherd*	Syracuse, N Y	A C Swift							9	
Grasslands Hospital**	Valhalla, N Y	G C Adie	473	2,536	55	34	3	7/1	9 12	75.00
Charlotte Memorial Hospital**	Charlotte, N C	T D Sparrow	1,185	4,030	51	20	6	7/1	9	75.00
Duke Hospital**	Durham, N C	D Hart	2,129	11,857	64	23	12	Varies	9	85.33
Watts Hospital*	Durham, N C		2,100	932	46	6	3	7/1	9	75.00
Rutherford Hospital	Rutherford, N C		994	6,833	2	1	1		9	
City Hospital*	Winston Salem, N C	W L Grimes	4,62	4,360	95	22	6		9	75.00
North Carolina Baptist Hospital**	Winston Salem, N C	H H Bradshaw	1,110	2,332	25	14	5	7/1	9	41.00
Trinity Hospital*	Minot, N D	A L Cameron							9	
City Hospital*	Akron, O		3 6-1		125	37	6		9	100.00
Peoples Hospital*	Akron, O								9	
St Thomas Hospital*	Akron, O	I C Banker	1,593		25	1	2	7/1	9 12	195.00
Verity Hospital*	Canton, O	A W Warren	1,665		96	24	3	4/1	9	125.00
Christ Hospital*	Cincinnati	P W Sutton	2,074	2,202	100	35	2	7/1	9 18	75.00
Cincinnati General Hospital*	Cincinnati	M W Sninninger	2,920	17,305	375	113	19	7/1	9 12	
Deaconess Hospital*	Cincinnati	W R Gless and R W Good	2,566		51	9	1	9/1	9	195.00
Good Samaritan Hospital*	Cincinnati	J L DeCourcey	8,079	1,097	90	41	4	7/1	9 48	75.00
Jewish Hospital*	Cincinnati	I L Ransohoff	973		43	23	2	10/1	9 24	175.00
City Hospital**	Cleveland	C H Jenhart	1,959	11,123	203	95	21		9+	100.00
Cleveland Clinic Foundation Hospital*	Cleveland	T F Jones	2,222						9	100.00
Lairview Park Hospital*	Cleveland	H W Masehnlmer	1,014	1,900	24	4	2	7/1	9	150.00
Mount Sinai Hospital**	Cleveland	A Strauss	2,071	850	58	24	3	7/1	9	75.00
St Alexis Hospital*	Cleveland	J I Corrigan	5,378	2,469	94	12	6	7/1	9	120.00
St John's Hospital**	Cleveland	L T Gallagher	1,890		45	12	3	7/1	9	100.00
St Luke's Hospital*	Cleveland	L A Willis	3,274	6,063	91	19	4	7/1	9 48	50.00
St Vincent Charity Hospital*	Cleveland	T P Neary	3,068	4,911	107	24	7		9	75.00
University Hospitals**	Cleveland	C H Jenhart	3,437	9,703				7/1	9	
St Francis Hospital*	Columbus, O	I B Harris	1,690	1,096	113	29	2		9	
St. Mary's Hospital**	Columbus, O	V A Dodd	1,435	2,172	65	30	10	7/1	9	50.00
St. Mary's Hospital**	Dayton, O	R C Austin	3,222		82	30	2	7/1	9	75.00
St. Mary's Hospital**	Fast Cleveland O		2,803	3,4	80	25	3		9	60.00
Maumee Valley Hospital*	Toledo, O		677	2 900	88	23	1		9	
Verity Hospital*	Toledo, O		3,756		78	10	1	7/1, 10/1	9	100.00
St Vincent's Hospital**	Toledo, O		775	4,081	82		2		9	
St Elizabeth's Hospital**	Youngstown O	F M Douglass	9,318	271	54	3	12		9	
St Anthony Hospital*	Oklahoma City	R M Howard	725						9	75.00
University Hospitals*	Oklahoma City	C F Clymer	1,031	3 568	77	35	2	7/1	9 18	75.00
Good Samaritan Hospital*	Portland, Ore		872	6,314	22	14	1	Varies	9	175.00
University of Oregon Medical School Hospitals and Clinics**	Portland, Ore	F M Joyce	1,012	4,257	93	46	4	7/1	9 18	75.00
Abington Memorial Hospital*	Abington, Pa	D B Pfeiffer	2,497	2,248	65	20	2	7/1	9 18	30.00
	Allentown, Pa		3,433	2,419	60	2		7/1	9 18	100.00
	Allentown, Pa		3,594	4,762	112	41	1	10/1	9 36	200.00
	Bethlehem, Pa	W L Estes Jr	2,432		118	61	2	7/1	9 24	100.00
	Bryn Mawr, Pa		419		18	7	2	7/1	9	100.00
George F Geisinger Memorial Hospital**	Danville, Pa	H F Foss	1,806	10 633	37	15	3	7/1	9 18	75.00
Germantown Dispensary and Hospital*	Philadelphia	W E Lee and W B Swartley	2,823	14,394	72	22	2	7/1	9 36	50.00
Graduate Hospital of the University of Pennsylvania*	Philadelphia	W Lee and W Bates	1,145	12,565	50	21	2	7/1	9 14	
Hahnemann Hospital**	Philadelphia	W L Martin	1,000	11,300	107	23	2	7/1	9 18	50.00
Hospital of the Protestant Episcopal Church**	Philadelphia	E A Crossan and I M Boykin	2 936b	11 3591	36	40	7	7/1	9	100.00
Hosp of the University of Pennsylvania**	Philadelphia	E L Eliason	3,205	21,975				7/1	9 60	
Hospital of the Woman's Medical College of Pennsylvania**	Philadelphia	J S Rodman	1 918		73	11	1	7/1	9 36	50.00
Jefferson Medical College Hospital*	Philadelphia	T A Shallow and G P Muller	2 906	10 499			3	1/1, 10/1	9	50.00
Jewish Hospital**	Philadelphia	J M Deaver	3 211	1 070	106	47	1		9 18	75.00
Lankenau Hospital*	Philadelphia	B Lipschutz	1 050	6,184	74	17	1	7/1	9 36	50.00
Mount Sinai Hospital**	Philadelphia		655	812	16	8	1	1/1	9	100.00
Pennsylvania Hospital*	Philadelphia	T J Summey and A A Walking	1,668	11,493	76	34	4	7/1	9 18	90.00
Philadelphia General Hospital**	Philadelphia		2 609		198		3	Varies	9	91.33
Presbyterian Hospital*	Philadelphia	W L Caries	1 387b	7,897b			2	7/1	9	50.00
Temple University Hospital**	Philadelphia	W L Caries	9,149	2,137	89	31	4	7/1	9 36	57.00
Woman's Hospital**	Philadelphia	C M Smyth Jr	745	2,935	14	8	3	7/1	9 36	50.00
Allegheny General Hospital*	Pittsburgh	J C Burt	7,465	4,602	98	12	2	7/1	9	100.00
Children's Hospital**	Pittsburgh	W O Sherman	830	1,841	14	9	1	Varies	9	75.00
Verity Hospital**	Pittsburgh	J P Griffith	7 047		101	32	1	7/1	9 36	
Montefiore Hospital**	Pittsburgh	H Frankenstein	1,092	2,977	25	8	1		9	
Presbyterian Hospital**	Pittsburgh	E W Meredith	1 047		33	14	2	7/1	9 36	50.00
St Francis Hospital*	Pittsburgh		2,212	460	40	6	2	10/1	9 36	80.00
Reading Hospital**	Reading, Pa				82	30	1	7/1	9 12	175.00
Robert Packer Hospital*	Sayre, Pa		1 510	1,341	42	10	1	7/1	9 24	125.00
York Hospital*	York, Pa	J F Bacon	930	810	92	15	1		9	
Roper Hospital*	Charleston, S C	F E Kredel	2 194	13 898	72	38	6	7/1	9 27	50.00
Baroness Erlanger Hospital*	Chattanooga, Tenn	A M Patterson	1,876	2,690	72	10	1		9	
John Gaston Hospital*	Memphis Tenn	J L McGehee	2,119	9,093	146	22	3		9	
George W Hubbard Hospital of Meharry Medical College*	Nashville, Tenn	M Walker	734	3,373	40	11	3	1/1	9	75.00
Nashville General Hospital**	Nashville, Tenn	C Adams	1,475	12 676	62	3	4	7/1	9 18	125.00
St Thomas Hospital*	Nashville, Tenn	L W Edwards	4,334		91	0	3			

20. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies	Declining of Service (Mths)	Length of Ser- vice (Months)	Beginning Stipend (Month)
Vanderbilt University Hospital**	Nashville, Tenn.	B. Brooks	2,224	12,325	59	37	7	7/1	9	.....
Baylor University Hospital**	Dallas, Tex.	S. D. Weaver	1,333	643	23	6	3	1/1	9	\$50.00
Parkland Hospital**	Dallas, Tex.	L. Hudson	1,297	5,604	23	6	4	.....	9	50.00
St. Paul's Hospital*	Dallas, Tex.	O. W. Gibbons	2,711	.....	40	9	.....	.....	9	.....
John Sealy Hospital*	Galveston, Tex.	A. O. Singleton	894	3,899	45	21	6	Varies	9	50.00
Hermann Hospital**	Houston, Tex.	J. L. Taylor	978	1,452	27	6	3	1/1	9-36	50.00
Jefferson Davis Hospital**	Houston, Tex.	J. H. Walters	1,211	2,142	95	24	3	4/1	9	75.00
St. Joseph's Infirmary*	Houston, Tex.	G. W. Waldron	2,393	.....	166	68	3	.....	9	125.00
Southern Pacific Hospital*	Houston, Tex.	J. L. Taylor	639	7,137	17	4	.....	7/1	9-24	100.00
Scott and White Hospital**	Temple, Tex.	.....	2,810	.....	33	11	5	Varies	Varies	250.00
Salt Lake County General Hospital**	Salt Lake City	P. B. Price	471	1,449	22	15	.....	.....	9-18	50.00
Mary Fletcher Hospital**	Burlington, Vt.	A. G. Mackay	1,536	295	36	18	2	7/1	9-12	100.00
University of Virginia Hospital**	Charlottesville, Va.	E. P. Lehmann	1,934	7,026	64	23	20	7/1	9	25.00
.....	Chifton Forge, Va.	J. M. Emmett	2,671	4,871	25	11	3	3/1	9	60.00
.....	Norfolk, Va.	.....	1,717	.....	27	3	1	.....	9	.....
.....	Richmond, Va.	F. S. Johns	3,040	.....	25	6	.....	7/1	9-12	75.00
.....	Div.**, Richmond, Va.	L. A. Bigger	2,665	5,591	134	36	7	7/1	9	37.50
.....	Roanoke, Va.	H. H. Trout	1,907	.....	35	12	2	10/1	9-12	150.00
.....	Seattle, Wash.	R. D. Forbes	3,225	1,491	98	66	4	7/1	9-27	90.00
.....	Seattle, Wash.	.....	2,375	.....	67	11	3	7/1	9-36	150.00
.....	Seattle, Wash.	.....	871	.....	38	12	1	4/1, 7/1	9	50.00
.....	Seattle, Wash.	J. W. Baker	3,295	.....	27	16	2	7/1	9-15	100.00
.....	Vancouver, Wash.	E. D. Wiley	.....	5,216	1	0	1	10/1	9	150.00
.....	Beckley, W. Va.	J. W. Boland	652	3,744	19	6	2	1/1	9-12	100.00
.....	Charleston, W. Va.	J. E. Cannaday	1,832	2,066	57	30	4	7/1	9-36	50.00
.....	Huntington, W. Va.	R. J. Wilkinson	.....	.....	.....	.....	1	.....	9	.....
.....	Huntington, W. Va.	J. H. Steenberger	2,207	.....	71	38	1	.....	9	100.00
.....	Montgomery, W. Va.	W. R. Laird	1,787	5,438	35	7	2	7/1	9-24	100.00
.....	Madison, Wis.	F. R. Schmidt	1,990	2,045	89	56	9	4/1, 7/1	9-36	25.00
.....	Milwaukee	R. E. Morter	593	.....	56	15	1	7/1	9-18	50.00
.....	Milwaukee	.....	.....	.....	16	6	1	.....	9	.....
.....	Milwaukee	J. M. King	8,475	5,046	104	20	6	7/1	9-36	65.32
.....	Milwaukee	F. Stratton	5,725	.....	74	15	2	7/1	9-24	100.00
.....	Milwaukee	H. J. Gramling	2,175 ^b	407 ^b	.....	.....	1	.....	9	.....
.....	Milwaukee	.....	.....	.....	.....	.....	1	.....	9	.....

Hospitals, 308; Assistant Residencies and Residencies, 1,420

21. THORACIC SURGERY

Olive View Sanatorium	Olive View, Calif.	J. Skillen	233	.....	.....	3	Varies	9	\$225.00	
.....	Sanatorium	.....	.....	.....	.....	.....	.....	.....	.....
.....	Norwich, Conn.	R. G. Urquhart	.....	365	.....	2	Varies	9	153.66	
Chicago Municipal Tuberculosis Sanatorium	Chicago	R. M. Davison	290	431	.....	2	.....	9	.....
.....	
Hospital Division of the Boston City	Boston	H. Binney	75	.....	1	1	Varies	9	150.00	
University Hospital *	Ann Arbor, Mich.	J. Alexander	418	1,103	27	10	6	.....	9-21	.....
Herman Kiefer Hospital.	Detroit	E. J. O'Brien	736	1,519	16	9	4	Varies	9-24	175.00
.....	Sanatorium, Miss.	J. S. Harter	317	84	7	0	1	.....	9-24	125.00
.....	St. Louis	E. A. Graham	231	.....	32	19	1	.....	9	.....
.....	Jersey City, N. J.	F. Bortone	44	.....	.....	.....	.....	.....	9	.....
.....	Brooklyn	H. C. Maier	171	374	23	4	1	7/1	9-18	110.00
Hospital *	Buffalo	J. C. Brady	.....	.....	.....	.....	.....	.....	9-36	50.00
Meriman M. Biggs Memorial Hospital *	Albany, N. Y.	.....	.....	.....	.....	.....	.....	.....	9-36	150.00
Triboro Hospital *	Jamaica, N. Y.	H. C. Maier and H. W. Louria	.....	.....	.....	.....	.....	.....	9-12	50.00
Mount Morris Tuberculosis Hospital	Mount Morris, N. Y.	.....	83	.....	.....	1	7/1	9-24	150.00	
Belleuve Hospital, Div. I—Columbia U. **	New York City	A. Lambert	106	215	20	12	4	Varies	9-24	82.22
Metropolitan Hospital *	New York City	S. A. Thompson	43	1,450	24	11	1	1/1	9-12	100.00
Homer Folks Tuberculosis Hospital	Oneonta, N. Y.	.....	179	18	5	4	2	7/1	9-24	200.00
Sea View Hospital *	Staten Island, N. Y.	.....	117	.....	30	10	5	1/1, 7/1	9	110.00
North Carolina Baptist Hospital *	Winston-Salem, N. C.	.....	105	.....	7	5	2	7/1	9	41.65
City Hospital *	Cleveland	.....	.....	.....	.....	.....	.....	.....	9	.....
University of Oregon Medical School Hos- pitals and Clinics **	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Muirdale Sanatorium	Portland, Ore.	R. Matson	215	6,276	11	11	3	7/1	9-15	75.00
.....	Milwaukee	.....	.....	.....	.....	.....	.....	.....	9	.....

Hospitals, 22; Assistant Residencies and Residencies, 47

22. TRAUMATIC SURGERY

Morrisania City Hospital**	New York City	.....	2,245 ^b	5,612 ^b	.....	.....	.....	.....	9	\$50.00
Charleston General Hospital*	Charleston, W. Va.	.....	(See Surgery)	.....	.....	.....	.....	.....	9	.....

23. TUBERCULOSIS

Los Angeles Sanatorium*	Duarte, Calif.	J. Segal	330	2,351	69	17	4	.....	9	.....
Arroyo Del Valle Sanatorium	Livermore, Calif.	C. Bush	209	.....	21	0	2	.....	9-12	\$105.00
Barlow Sanatorium*	Los Angeles	H. W. Bosworth	175	1,555	2	1	2	7/1	9-12	109.00
Los Angeles County Hospital**	Los Angeles	C. Howson	1,290	2,491	495	27	3	Varies	9	.....
Pottenger Sanatorium and Clinic*	Monrovia, Calif.	F. M. Pottenger	250	1,675	17	2	1	.....	9	.....
Bret Harle Sanatorium	Murphys, Calif.	E. P. Smarr	321	2,510	.....	.....	.....	7/1	9-24	125.00
Oliver Sanatorium	Oliver View, Calif.	W. R. Oeschell	1,787	.....	37	24	2	Varies	9	175.00
San Diego	San Diego, Calif.	R. H. Sundberg	724	2,620	75	24	1	.....	9-12	.....
San Francisco	San Francisco	S. M. Farber	121	.....	219	56	3	.....	9	115.00
San Jose	San Jose, Calif.	G. Scarborough	152	.....	.....	.....	.....	.....	9	.....
Falmouth Hospital of Alameda County	San Leandro, Calif.	.....	197 ^b	.....	.....	.....	.....	7/1	9	165.00
Denver General Hospital*	Denver	.....	130	4,658	4	9	1	.....	9-12	57.00
National Jewish Hospital*	Denver	C. J. Kaufman	263	3,549	21	10	5	1/1, 7/1	9-36	200.00
Relief Society	Spivak, Colo.	A. L. Briskman	209	2,415	21	5	1	Varies	9	100.00
Underhill, Meriden State Tuberculosis Sanatorium*	Meriden, Conn.	C. B. Gibson	717	2,794	117	25	2	7/1	9-24	75.00
Norwich State Tuberculosis Sanatorium (Ones-on-Thames)	Norwich, Conn.	W. H. Weldman	729	1,988	71	15	6	Varies	9	125.00
Laurel Heights State Tuberculosis Sanatorium	Shelton, Conn.	E. J. Lynch	649	1,791	60	5	2	7/1	9	75.00
Gaylord Farm Sanatorium*	Wallingford, Conn.	D. B. Lyman	235	5,600	4	6	2	Varies	9	100.00

Numerical and other references will be found on page 405.

23. TUBERCULOSIS—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies	Beginning of Service (1915)	Length of Service (Months)	Beginning Stipend (Monthly)
Tuberculosis Sanatorium (Glenn Dale, Md. P. O.)	Washington, D. C.	D. L. Finucane	1,238	.....	133	38	0	Varies	9-60	\$260.00
University of Chicago Clinics *	Chicago	R. G. Bloch	.....	725	.....	.....	1	Varies	9-24	25.00
Macon County	Decatur, Ill.	D. F. Loewen	146	6,857	8	7	1	1/1	9-12	100.00
Pleasant View	East St. Louis, Ill.	R. Bosworth	173	6,633	15	0	1	7/1	12-24	150.00
Peoria Municipal Tuberculosis Sanatorium *	Peoria, Ill.	M. Pollak	247	4,374	29	17	2	.....	9	.....
Lake County	Rockford, Ill.	W. J. Bryan	242	.....	18	12	1	8/1	9-36	160.00
Boehne Tul	Waukegan, Ill.	C. K. Pether	315	4,000	40	27	1	1/1, 7/1	9-24	25.00
Indianapolis City Hospital *	Evansville, Ind.	P. D. Crimm	318	3,485	47	45	2	Varies	9-24	200.00
Sunnyside Sanatorium *	Indianapolis	J. H. Stygall	313	2,026	60	3	1	4/1	9-12	30.00
State Sanatorium *	Indianapolis	F. L. Jennings	245	1,118	43	16	1	Varies	9-24	100.00
Western Maine Sanatorium *	Oakdale, Ia.	W. M. Spear	706	.....	71	4	1	.....	9	.....
Baltimore City Hospitals *	Greenwood Mt., Me.	L. Adams	261	582	24	10	1	Varies	9	.....
Sanatorium Division of Boston City Hosp.	Baltimore	L. M. Serra	590	.....	195	67	4	4/1	9-12	40.00
Rutland State	Boston	J. A. Foley	1,054	.....	213	.....	5	Varies	9	150.00
Norfolk County	Rutland, Mass.	P. Dufault	491	.....	45	4	1	.....	9	.....
Middlesex County	S. Braintree, Mass.	N. R. Pillsbury	222	.....	29	3	2	.....	9-24	200.00
Westfield State Sanatorium *	Waltham, Mass.	S. H. Remick	602	14,329	105	38	2	.....	9-24	200.00
Belmont Hospital *	Westfield, Mass.	R. Morgan	235	3,726	49	2	1	.....	9	162.96
University Hospital *	Worcester, Mass.	A. D. Ward	272	2,548	44	15	2	.....	9	133.00
American Legion	Ann Arbor, Mich.	J. Barnwell	52	993	4	3	2	Varies	9	200.55
Herman Kiefer	Battle Creek, Mich.	L. C. Mann	368	.....	43	.....	1	.....	9	.....
Michigan State	Detroit	P. T. Chapman	1,784	42,032	289	105	15	7/1	9-12	200.00
Ingham Sanatorium *	Howell, Mich.	E. W. Laboe	782	1,020	113	1	4	Varies	9	257.50
Morgan Heights	Lansing, Mich.	C. J. Stringer	310	5,352	18	0	2	7/1	9-24	200.00
William H. May	Marquette, Mich.	R. F. Berry	337	.....	15	1	1	.....	9	.....
Oakland County Tuberculosis Hospital *	Northville, Mich.	H. S. Willis	1,573	.....	106	92	3	7/1	9-48	200.00
Nopemng Sanatorium *	Pontiac, Mich.	A. S. Kimball Jr.	420	4,245	40	8	3	.....	9-24	100.00
Glen Lake Sanatorium *	Nopemng, Minn.	G. A. Hedberg	547	4,007	53	29	2	Varies	9-24	25.00
Mississippi	Oak Terrace, Minn.	E. S. Marlette	961	5,503	.....	.....	4	.....	9-24	125.00
Kansas City	Sanatorium, Miss.	H. Boswell	1,150	2,004	34	0	3	1/1	9-27	50.00
Robert Koc	Kansas City, Mo.	M. J. Noon	830	.....	63	46	3	.....	9	.....
Romer G.	Koch, Mo.	G. D. Kettelkamp	761	.....	92	32	3	.....	9	.....
Mount St. Rose Sanatorium	St. Louis	A. Goldman	229	114	95	12	1	7/1	9	80.00
New Jersey Sanatorium for Tuberculous Diseases	St. Louis	J. L. Mudd	301	1,883	30	12	1	.....	9	35.00
Hudson County Tuberculosis Hospital and Sanatorium	Glen Gardner, N. J.	A. J. Stelow	680	1,612	9	4	3	.....	9	166.66
Essex	Jersey City, N. J.	B. S. Pollak	1,020	12,749	161	25	5	.....	9	.....
Albany	Verona, N. J.	B. M. Harman	737	4,546	172	23	2	.....	9	200.00
Montefiore Hospital Country Sanatorium *	Albany, N. Y.	R. J. Erickson	259	2,070	50	23	2	7/1	9-12	25.00
Kings County Hospital *	Bedford Hills, N. Y.	M. Pinner	441	.....	1	.....	4	1/1	9-12	100.00
Kingston Avenue Hospital *	Brooklyn	C. Hamilton	912	7,181	98	1	3	7/1	9-18	110.00
Edward J. Meyer Memorial Hospital *	Brooklyn	F. Murray	201	.....	37	9	2	7/1	9	100.00
Nassau County Sanatorium	Buffalo	J. H. Donnelly	743	2,144	208	35	3	7/1	9-36	59.00
Herman M. Biggs Memorial Hospital *	Farmingdale, N. Y.	J. C. Walsh	327	7,005	54	17	4	7/1	9-24	180.00
Triboro Hospital *	Ithaca, N. Y.	N. S. Lincoln	410	5,027	43	22	3	.....	9-36	150.00
Mount Morris	Jamaica, N. Y.	R. H. Bennett	1,081	9,982	139	37	14	.....	9-12	50.00
Bellerue Hosp	Mount Morris, N. Y.	A. M. Stokes	259	5,574	33	17	3	7/1	9-24	150.00
Lenox Hill Hospital *	New York City	J. B. Amberson	2,840	9,914	245	116	13	Varies	9-36	83.33
Metropolitan Hospital *	New York City	G. Thorburn	89	.....	4	.....	1	7/1	9	50.00
Montefiore Hospital for Chronic Diseases *	New York City	G. G. Ornstein	559	3,490	241	13	7	1/1	9-12	100.00
Homer Folks Tuberculosis Hospital *	New York City	.....	405	.....	102	42	4	1/1, 7/1	9-12	50.00
Municipal Sanatorium *	Oneonta, N. Y.	R. Horton	1,436	7,140	26	11	4	7/1	Varies	200.00
New York State	Otisville, N. Y.	J. S. Edlin	746	5,000	28	10	4	.....	9	.....
Iola-Monroe Cour	Ray Brook, N. Y.	H. A. Bray	701	20,374	87	31	7	Varies	9-24	187.50
Schenectady County Tuberculosis Hospital *	Rochester, N. Y.	E. Bridge	231	2,210	17	3	2	7/1	9-12	100.00
Sea View Hospital *	Schenectady, N. Y.	F. M. Blake	3,882	.....	672	46	21	1/1, 7/1	9	110.00
Trudeau Sanatorium *	Statens Island, N. Y.	G. Ornstein	435	.....	5	1	4	Varies	9-12	25.00
Grasslands Hospital *	Trudeau, N. Y.	F. H. Heise	542	1,689	86	37	8	Varies	9	.....
Jefferson County Sanatorium *	Valhalla, N. Y.	W. G. Childress	113	2,454	9	6	1	7/1	9-36	100.00
Dunham Hospital *	Watertown, N. Y.	S. E. Simpson	1,006	2,711	185	38	6	.....	9	.....
City Hospital *	Cincinnati	J. H. Skavlem	1,270	.....	308	53	4	.....	9	90.00
Franklin County Tuberculosis Hospital *	Cleveland	R. C. McKay	622	.....	83	49	5	7/1	9-36	150.00
Sunny Acres, Cuyahoga County Tuberculosis Hospital	Columbus, O.	M. D. Miller	.....	.....	.....	.....	.....	.....	.....	.....
Eagleview San	Warrensburg, O.	R. H. Browning	807	18,070	24	7	6	7/1	9	225.00
Germantown D	Eagleview, Pa.	A. J. Cohen	399	6,778	19	.....	2	.....	9	.....
White Haven Sanatorium *	Philadelphia	F. M. McPhedran	.....	.....	.....	1	7/1	9-36	.....	.....
State Sanatorium *	White Haven, Pa.	C. A. Heiken	355	.....	55	8	2	3/1	9	100.00
Pine Breeze	Wallum Lake, R. I.	U. E. Zamborano	774	5,442	125	19	2	Varies	9	50.00
Davidson Co	Chattanooga, Tenn.	W. D. Rosborough	572	.....	67	0	2	.....	9	60.00
Woodmen o	Nashville, Tenn.	R. R. Crowe	585	9,987	72	15	3	7/1	9-18	150.00
King County	San Antonio, Tex.	R. G. McCorkle	200	.....	8	3	1	9/1	9-12	.....
Hopemont Sanitarium *	Seattle, Wash.	J. H. Fountain	358	2,420	43	3	1	7/1	9-36	250.00
Muirdale Sanatorium *	Hopemont, W. Va.	D. Salkin	920	2,300	67	26	4	.....	9-36	175.00
Wisconsin State Sanatorium *	Milwaukee	A. V. Cadden	1,086	1,193	131	23	4	.....	9-24	.....
	Statenan, Wis.	R. H. Schmidt Jr.	259	.....	17	9	3	.....	9	200.00

Hospitals, 92; Assistant Residencies and Residencies, 320

24. UROLOGY

Jefferson and Hillman Hospitals *	Birmingham, Ala.	W. F. Scott	325	5,016	34	9	2	Varies	9-24	\$50.00
Los Angeles County Hospital *	Los Angeles	G. F. Schenck	1,637	6,278	195	65	5	Varies	9-36	157.20
	Los Angeles	B. W. Barnes	633	5,344	24	13	1	7/1	9-12	116.00
	San Francisco	F. Hinman	572	.....	16	4	4	7/1	9	100.00
	San Francisco	R. Smith	358	.....	30	9	1	.....	9	115.00
	San Francisco	R. Dillon	389	3,895	12	1	2	7/1	9-18	50.00
	San Francisco	F. Hinman	345	7,369	10	6	1	Varies	9-12	50.00
	San Francisco	C. Deming	485	2,250	18	.....	2	7/1	9-12	a
New Haven Hospital *	Washington, D. C.	.....	360	998	23	13	2	7/1	9	.....
Gallinger Municipal Hospital *	Jacksonville, Fla.	.....	438	.....	27	6	1	.....	9	150.00
St. Vincent's Hospital *	Atlanta, Ga.	.....	493	5,190	42	4	4	7/1	9	20.00
Grady Memorial Hospital *	Chicago	H. Culver	1,524	.....	238	27	2	1/1, 7/1	9-36	25.00
Cook County Hospital *	Chicago	H. Roelick	395	1,650	15	8	2	.....	9-36	25.00
Michael Reese Hospital *	Chicago	H. L. Kretschmer	953	2,439	16	13	2	7/1	9-12	50.00
Presbyterian Hospital *	Chicago	H. Culver	608	1,408	27	10	3	7/1	9-36	25.00
St. Luke's Hospital *	Chicago	C. B. Huggins	274	5,918	12	9	2	Varies	9-24	25.07
University of Chicago Clinics *	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Numerical and other references will be found on page 405.

24. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated*	Outpatient Visits	Deaths	Autopsies	Asst. Res. and Residencies*	Beginning of Service (1915)	Length of Ser- vice (Months)	Beginning Salary (Month)
Indianapolis City Hospital*	Indianapolis	W. P. Morton	285	1,440	31	2	1	4/1	9-24	\$30.00
University Hospitals*	Iowa City	N. G. Alcock	1,538	1,505	97	1	1	7/1	9	25.00
Charity Hospital of Louisiana*	New Orleans		1,938	10,460	80	2	1	Varies	9-36	60.00
Touro Infirmary*	New Orleans	E. Burns	550	2,179	33	1	1	7/1	9	50.00
Johns Hopkins Hospital*	Baltimore	J. A. C. Colston	1,018	4,336	33	1	1	7/1	9	41.66
Beth Israel Hospital*	Boston		377	1,876	51	13	1	7/1	9	50.00
Boston City Hospital*	Boston	H. H. Howard	516	7,153	51	13	1	7/1	9	50.00
Labey Clinic	Boston								9	
Massachusetts General Hospital*	Boston	G. G. Smith	330 ^b	10,339 ^b	13	10	3	7/1	9	
Massachusetts Memorial Hospitals*	Boston	S. N. Yose		1,048	13	10	1	7/1	9	
University Hospital*	Ann Arbor, Mich.	R. M. Nesbit	1,235	8,108	30	16	6	Varies	9	100.65
City of Detroit Receiving Hospital*	Detroit	W. E. Keane and E. G. Martin	873	5,971	83	25	2	7/1	9-18	145.58
Grace Hospital*	Detroit	H. W. Plaggemeyer	1,001	369	25	6	1	7/1	9-36	125.00
Harper Hospital*	Detroit	F. H. Cole			23	7	1		9	
Henry Ford Hospital*	Detroit	J. K. Ormond	526	12,367	18	9	3	7/1	9-36	175.00
Eloise Hospital and Infirmary*	Eloise, Mich.	W. L. Corman	333	1,809	83	31	4	7/1	9-12	160.00
University Hospitals*	Minneapolis	C. D. Creevy	685	2,441	25	13	1	7/1	9-36	91.50
Mayo Foundation	Rochester, Minn.	W. E. Braess and S. J. Thompson	(See this page)			12			9	
Ancker Hospital*	St. Paul	F. E. B. Foley	326	1,736	34	24	1	7/1	9	80.00
Charles T. Miller Hospital*	St. Paul	F. E. B. Foley	429	714		1	1	7/1	9	
Kansas City General Hospital*	Kansas City, Mo.	R. L. Hoffman	291	854	32	21	1		9-24	50.00
Homer G. Phillips Hospital*	St. Louis	R. Deakin	454		37	7	2	1/1	9	80.00
St. Louis City Hospital*	St. Louis	G. Carroll	465	1,690	64	30	2	7/1	9	80.00
St. Mary's Group of Hospitals*	St. Louis	C. E. Burford	560	2,207	28	14	3	7/1	9	35.00
Atlantic City Hospital*	Atlantic City, N. J.	C. H. de't. Shivers	206 ^b	6,263 ^b			1		9	
Bayonne Hospital and Dispensary*	Bayonne, N. J.	S. R. Woodruff	674	211	13	5	3	7/1	9-12	
Jersey City Hospital*	Jersey City, N. J.	E. J. Daly	564	3,089	39	10	4	Varies	9-12	35.00
Newark City Hospital*	Newark, N. J.	C. R. O'Crowley	346 ^b			1			9	
Albany Hospital*	Albany, N. Y.	J. E. Heslin	876	1,252	33	16	3	7/1	9-12	25.00
Elms County Hospital*	Brooklyn	F. L. Senger	1,302	2,254	181	14	2	7/1	9-18	60.00
Long Island College Hospital*	Brooklyn	F. L. Senger	589	2,450	25	6	2	7/1	9-27	25.00
Buffalo General Hospital*	Buffalo		438	738	28	15	1		9-12	
Edward J. Meyer Memorial Hospital*	Buffalo	E. M. Watson	313	1,845	37	17	3	7/1	9-36	59.00
Queens General Hospital*	Jamaica, N. Y.	F. G. Riley	689	9,759	64	34	2	7/1	9-24	110.00
Bellevue Hospital, Div. II—Cornell U.*	New York City	H. S. Jeck	1,144	8,774	88	12	5	Varies	9-12	25.00
Metropolitan Hospital*	New York City	S. Carleton	226	3,767	28	9	1	4/1	9-12	100.00
Morrisania City Hospital*	New York City	J. Duff	650	1,778	37	11	2	7/1	9	100.00
New York City Hospital*	New York City	J. H. Morrissey	158	1,887	27	7	1	7/1	9	110.00
New York Hospital*	New York City	O. L. Brady	882	13,838	33		9	7/1	9-60	25.00
New York Polyclinic Medical School and Hospital*	New York City		549	1,604	22	2	1		9	25.00
New York Post-Graduate Medical School and Hospital*	New York City	C. G. Bandler	1,332	4,662	20	6	4	7/1	9-36	30.00
Presbyterian Hospital*	New York City	G. Cahill	1,248	7,772	56		6		9	20.63
Roosevelt Hospital*	New York City	S. A. Belsler	485	2,267	16	2	2	7/1	9-12	
St. Luke's Hospital*	New York City		421	2,980	21	6	1	Varies	9-36	50.00
Strong Memorial and Rochester Municipal Hospitals*	Rochester, N. Y.	W. W. Scott	731	10,185		4		7/1	9-48	41.67
Sea View Hospital*	Staten Island, N. Y.	A. G. Greenberger	168		7	1	1	1/1, 7/1	9	110.00
Duke Hospital*	Durham, N. C.	E. P. Algen	637	4,749	6	3	6	Varies	9	83.33
Watts Hospital*	Durham, N. C.		399	276	6	3	1	7/1	9	100.00
North Carolina Baptist Hospital*	Winston-Salem, N. C.	F. K. Garvey	572	582	14	3	2	7/1	9	41.66
City Hospital*	Cleveland	H. Trattner	491	2,341	37		2		9	75.00
Cleveland Clinic Foundation Hospital*	Cleveland	W. E. Lower	994			6			9	100.00
University Hospital*	Cleveland	J. E. Williams	538 ^b	3,130 ^b		1		7/1	9	
Starling-Loving University Hospital*	Columbus, O.	W. N. J. Taylor	398	779	16	2	3		9	50.00
St. Vincent's Hospital*	Toledo, O.	L. P. Dolan		41	38	1	1		9	
University of Oregon Medical School Hos- pitals and Clinics*	Portland, Ore.	J. R. Hand	167	1,207	13	7	3	7/1	9	75.00
George F. Geisinger Memorial Hos-pital*	Danville, Pa.	W. L. Buchert	549	4,636	11	2	1	7/1	9-24	75.00
Graduate Hospital of the University of Pennsylvania*	Philadelphia	J. Birdsall	178	1,662	14	5	1	7/1	9-24	
Hospital of the University of Pennsylvania*	Philadelphia	A. Randall	612	2,382	9	8	1	7/1	9-26	
Jefferson Medical College Hospital*	Philadelphia	D. M. Davis	714	4,976			1		9	
Pennsylvania Hospital*	Philadelphia	L. Herman	650	2,637	20	7	2	7/1	9-18	20.00
Presbyterian Hospital*	Philadelphia	J. C. Birdsall				1		7/1	9	50.00
Mercy Hospital*	Pittsburgh	F. J. McCague	546		17	4	1	11/1	9-26	
Parkland Hospital*	Dallas, Tex.	A. I. Folsom				1			9	50.00
University of Virginia Hospital*	Charlottesville, Va.	S. A. Vest	558	2,767	23	9	6	7/1	9	25.00
State of Wisconsin General Hospital*	Madison, Wis.	I. Eick	644		22	12	3	7/1	9-26	25.00
Milwaukee County Hospital*	Milwaukee	R. S. Irwin	906	2,108	40	8	2	7/1	9-29	65.32

Hospitals, 82; Assistant Residencies and Residencies, 210

Mayo Foundation Fellowships—The Mayo Foundation for Medical Education and Research, Rochester, Minn.; D. C. Balfour, director; three-year fellowships, beginning quarterly, leading to the degree of M.S. or Ph.D. with field named from the University of Minnesota; in Anesthesia, Derma-
tology and Syphilology, Internal Medicine, Neurology and Psychiatry, Neurosurgery, Obstetrics and Gynecology, Ophthalmology, Orthopedic
Surgery, Otolaryngology, Pathology, Pediatrics, Physical Medicine, Plastic Surgery, Proctology, Radiology, Surgery, Urology; stipend \$900 per year.
(clinical fellowships including pathology and radiology—tentative estimate, 400).

a. Compensation arranged by medical school and hospital.

b. As reported in previous list.

c. In lieu of maintenance.

d. Residency in epilepsy.

e. Obstetrical training at Herman Kiefer Hospital, Detroit.

f. Training in gynecology at City of Detroit Receiving Hospital.

g. Assignments in psychosomatic medicine also available.

h. Fellowship offered in affiliation with Northwestern University
Medical School, St. Luke's Hospital and Wesley Memorial
Hospital, Chicago.

i. Outpatient and home delivery service only.

k. Training in gynecology at Barnes Hospital, St. Louis.

1. Approved by the Board as offering satisfactory one year training.

2. Approved by the Board as offering satisfactory two year training.

3. Approved by the Board as offering satisfactory three year training.

4. Residencies open to women.

5. Clinical data include psychiatry.

6. Inpatients: Data refer to total inpatients treated in specialty.
Obstetrical admissions do not include newborn. In pathology
and anesthesiology total hospital admissions are used.

7. Clinical data include neurology.

8. Includes fellowships.

9. Affiliated with Northwest Clinic, Minot.

10. Includes acceptable affiliate assignment at Urologic Clinic,
Philadelphia.11. Includes affiliate service at South Bend Medical Laboratory,
St. Joseph Hospital, South Bend; Elkhart General Hospital,
Elkhart and St. Joseph's Hospital, Mishawaka, Ind.12. Represents training acceptable to Board in (1) radiology, (2)
roentgenology, (3) therapeutic radiology or (4) diagnostic
roentgenology.

13. Affiliated with North Carolina Orthopedic Hospital, Gastonia.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. of Obstetrics and Gynecology, St. Louis 50:1-118 (July) 1945

- Carcinoma of Uterine Cervix: Interval Report on Treatment, Results and Complications. G. V. S. Smith and R. Dresser.—p. 1.
Transplantable Rat Tumor. R. M. Watts and F. L. Adair.—p. 11.
Cesarean Section Mortality. W. J. Dieckmann.—p. 28.
Serum Protein in Normal and Toxemic Pregnancy. R. E. Rinchart.—p. 48.
Treatment of Functional Dysmenorrhea with Pregnenolone. F. E. Harding.—p. 56.
Possible Role of Bacterial Synergism in Puerperal Infections Due to Anaerobic Streptococci. S. R. Steinhorn.—p. 63.
Experience with Continuous Caudal Analgesia in Obstetrics at University of Michigan Hospital: Report of 250 Consecutive Cases. G. J. Andros and C. W. Henderson.—p. 68.
Cesarean Section Under Fractional Spinal Anesthesia. W. Levine.—p. 75.
Circulation of Amniotic Fluid. W. F. Mengert and J. W. Bourland.—p. 79.
*Vitamin E in Menopause: Preliminary Report of Experimental and Clinical Study. C. J. Christy.—p. 84.
*Sulfonamide and Stilbestrol Therapy in Gonococcal Vulvovaginitis. Lucile R. Hac, H. C. Hesselstine, F. L. Adair and Myrtle B. Crudim.—p. 88.
Craniotomy, with Review of Cases. J. I. Kushner and A. C. Posner.—p. 95.
Essential Dysmenorrhea—Its Treatment with Pavatrine: Preliminary Report. C. H. Weinberg.—p. 98.
Test Case to Show Value of Cervical Cytology Smear in Uterine Cancer Diagnosis. J. E. Ayre, W. A. G. Bauld and P. J. Kearns.—p. 102.
Parovarian Cyst Causing Dystocia. W. Downing and L. O'Toole.—p. 106.
Intraperitoneal Nabothian Cyst. R. T. Frank.—p. 107.
Avulsion Defects of Scalp of Newborn Infant: Medicolegal Implications. W. J. Finegold and E. B. Schuster.—p. 108.

Vitamin E in Menopause.—Christy gave vitamin E in the form of a synthetic preparation, ephynal acetate, in 10 mg. tablets, to 25 patients ranging from 22 to 55 years. Of this group 12 had carcinoma of the cervix, 1 had adenocarcinoma of the fundus, 1 had malignant leiomyoma and sarcoma of the uterus, 6 had fibroids, 1 had carcinoma of the ovary, 1 had hemangioendothelioma of the parametrium, 1 had postmenopausal bleeding after estrogenic therapy, 1 had dysfunctional uterine bleeding due to endocrine disorder and 1 had endometriosis. No patient was treated who did not complain of severe symptoms of vasomotor instability. The amount of the drug taken varied from 10 to 30 mg. a day, depending on the degree of severity of symptoms, over periods of from one to six weeks. Seven patients reported complete and 16 great relief. The relief of symptoms in patients after administration of vitamin E could not be distinguished from that obtained with the natural or synthetic estrogens. In some cases vitamin E seems more effective in relieving the symptoms of vasomotor instability than estrogens. The chief advantage over estrogen is that vitamin E is free of any stimulative effect on the genital system or on the parenchyma of the breast. It plays no carcinogenic role as the estrogens may do and therefore can be used freely in menopausal patients with neoplastic disease. It is well tolerated.

Sulfonamide and Diethylstilbestrol in Gonococcal Vulvovaginitis.—According to Hac and her associates, of 135 children with gonococcal vulvovaginitis treated with sulfanilamide, sulfapyridine or sulfathiazole and observed one year following therapy, equally good results were obtained with sulfapyridine and sulfathiazole whether the response was based on cure (both 89 per cent) or on initial failure (sulfapyridine 5 per cent, sulfathiazole 6 per cent). Sulfapyridine caused more minor toxic symptoms than did sulfathiazole. Sulfanilamide is definitely contraindicated because of the higher percentages of failure and because it tends to produce strains of

gonococci which are resistant to sulfonamides. Of 35 children treated with sulfadiazine and observed three months following therapy, 89 per cent were cured and 6 per cent were initial failures. Diethylstilbestrol was useful in the treatment of sulfonamide resistant cases. Negative cultures for three months are probably sufficient criteria to establish a cure. Patients under treatment and observation may be permitted to return to school as soon as cultures have become negative.

American Journal of Pathology, Ann Arbor, Mich. 21:567-820 (July) 1945

- *Vaginal Smear in Diagnosis of Carcinoma of Uterus. O. Gates and S. Warren.—p. 567.
*Comparative Study of Pathology of Scrub Typhus (Tsutsugamushi Disease) and Other Rickettsial Diseases. A. C. Allen and Sophie Spitz.—p. 603.
Malignant Lymphoma (So-Called Leukemia) in Dogs. F. Bloom and L. M. Meyer.—p. 683.
Internal Lesions in Burns, with Special Reference to Liver and Splenic Nodules: Analysis of 96 Autopsies. R. D. Baker.—p. 717.
"Masson Body" in Rheumatic Pneumonia. P. A. Herbut and W. E. Manges.—p. 741.
Reaction of Reticuloendothelial System in Experimental Brucellosis of Dogs. G. Margolis, W. D. Forbus and G. P. Kerby.—p. 753.
Failure of Pressor Drugs to Influence "Juxtaglomerular Apparatus" in Rats. J. Graef and G. G. Proskauer.—p. 779.
Primary Intracranial Chorionepithelioma with Metastases to Lungs. R. E. Stowell, E. Sachs and W. O. Russell.—p. 787.
Renal Injury in Rat Following Administration of Serine by Stomach Tube. R. P. Morehead, W. H. Fishman and C. Artom.—p. 803.

Vaginal Smear in Diagnosis of Carcinoma of Uterus.—During the period from February through Nov. 15, 1944 Gates and Warren examined 341 vaginal smears from 233 patients. The stain recommended by Papanicolaou and Traut was used for nearly all smears. The others were stained with hematoxylin and eosin and were quite satisfactory. The authors think that a mistaken positive diagnosis of a negative smear should be a problem only in exceptional cases of radiation reaction or of senile atrophy with infection. False negative diagnoses are more difficult to avoid. There are certain types of carcinoma cell which are difficult to recognize without a good deal of experience. Interpretation of smears made after radiation treatment demands more experience than other smears because of the changes in epithelium induced by radiation. The smear may be valuable in diagnosis to detect recurrence after radiation, since in these cases biopsy is preferably avoided. As a subsidiary test the vaginal smear may be especially useful in cases of "hidden" carcinoma. It may be of value as a screening test for detecting the existence of cervical or endometrial cancer in large groups of women.

Pathology of Tsutsugamushi Fever and Other Rickettsial Diseases.—Allen and Spitz studied the histologic preparations and protocols of 78 cases of tsutsugamushi disease (scrub typhus), 24 cases of epidemic (louse borne) typhus, 12 cases of Rocky Mountain spotted fever and the sections of lungs of 2 cases of American Q fever. The primary lesion, or eschar, is considered to be provoked by the combined action of the secretion of the larval mite and the inoculated rickettsias. It is suggested that the absence of the eschar in certain instances of scrub typhus may be due to variations in cutaneous immunity. Interstitial pneumonitis is common in scrub typhus, in contrast with epidemic typhus and Rocky Mountain spotted fever. The histologic picture of the interstitial pneumonitis of scrub typhus is distinguishable from that of Q fever, rheumatic fever, toxoplasmosis and virus pneumonia. The amount of hepatic damage does not suggest that hypoproteinemia is due to hepatic insufficiency. Early, acute, diffuse glomerulonephritis is common in scrub typhus, epidemic typhus and Rocky Mountain spotted fever. The focal encephalitis or nodule of scrub typhus is qualitatively similar to that of epidemic typhus and is in contrast to the "microinfarct" of Rocky Mountain spotted fever. The nodules of scrub typhus and epidemic typhus are practically limited to the gray matter, whereas the encephalitis of spotted fever involves the white matter preponderantly. Contrary to the generally held impression, there is a sparsity of microscopically evident vascular damage in scrub typhus. Arteritis is exceedingly slight in scrub typhus in contrast with epidemic typhus and Rocky Mountain spotted fever. The peripheral circulatory failure in patients with rickettsial diseases is a complex phenomenon which cannot be explained solely on the basis of mor-

phologic damage to vessels. The contributory role of the adrenal gland is suggested. Evidence is presented of the lymphoblastic origin of the cells of the interstitial infiltrate. It is suggested that the large "basophilic macrophage" is identical with the "acute splenic tumor cell," and evidence is given pointing toward the association of these cells with an allergic response. The authors emphasize the importance of the indirect, possibly toxic but more likely hyperergic effects of the rickettsias on the basis of certain histologic responses which are regarded as presumptive evidence of the action of allergens. These responses include fibrinoid degeneration of collagen, necrosis of lymph nodes and spleen, predominance of the basophilic macrophage and associated cells, and acute diffuse glomerulonephritis.

American Journal of Physiology, Baltimore

144:1-173 (June) 1945

- Effect of Modulated High Frequency Condenser Field on Straub-Fuehner Frog Heart Preparation. C. Fenning and C. R. Mott.—p. 1.
- Experimental Studies on Man with Restricted Intake of B Vitamins. A. Keys, A. Henschel, H. L. Taylor, O. Mickelsen and J. Brozek.—p. 5.
- Flow and pH Change of Submaxillary Saliva Associated with Variations in Acid-Base Equilibrium. C. R. Brassfield.—p. 43.
- Carbohydrate and Acetone Body Metabolism of Liver Slices and Effect of Insulin. R. A. Shipley and E. J. Humel Jr.—p. 51.
- Comparison of Intravenous and Oral Vitamin Tolerance Tests. R. E. Johnson, L. A. Contreras, F. C. Consolazio and P. F. Robinson.—p. 58.
- Hypertrophy of Adrenal Medulla of White Rats in Chronic Thiouracil Poisoning. D. Marine and E. J. Baumann.—p. 69.
- Riboflavin and Vitamin B Potency of Tissues from Rats Fed Succinyl-sulfathiazole With and Without Liver Supplements. B. S. Schweigert, L. J. Teply, I. T. Greenbut and C. A. Elvehjem.—p. 74.
- Mechanisms of Carotid Body Stimulation. W. H. Hollinshead and C. H. Sawyer.—p. 79.
- Oxygen Consumption of Excised Rat Tissues Following Acute Anoxic Anoxia. F. A. Fuhrman, G. J. Fuhrman and J. Field 2d.—p. 87.
- Failure of Transfusions in Irreversible Hemorrhagic Shock (Study of Central Venous Pressures). C. J. Wiggers.—p. 91.
- Blood Potassium and Histamine Intoxication in Relation to Adrenocortical Function in Rats. Caroline Tum-Suden, L. C. Wyman and M. A. Derow.—p. 102.
- Protection of Adrenalectomized Rats Against a High Temperature. Virginia Hermanson and F. A. Hartman.—p. 108.
- Effect of Electric Current on Gastric Secretion and Potential. W. S. Rehm.—p. 115.
- Anticholinesterase Activity of Acid as Biologic Instrument of Nervous Integration. R. Gesell and E. T. Hansen.—p. 126.
- Studies on Cardiovascular System of Dogs with Radioactive Inert Gases. S. F. Cook and W. N. Sears.—p. 164.
- Spread of ACh Induced Electrical Discharges of Cerebral Cortex. F. M. Forster and R. H. McCarter.—p. 168.

Experimental Studies on Restricted Intake of B Vitamins.—Keys and his associates of the laboratory of Physiologic Hygiene of the University of Minnesota studied experimentally the relation in normal men between intake of vitamins of the B complex and various aspects of fitness. Four normal young men were maintained on a controlled dietary intake of 0.185 mg. of thiamine, 0.287 mg. of riboflavin and 3.71 mg. of niacin per thousand calories. Four other subjects were on the same diet but supplemented each day with 1 mg. of thiamine, 1 mg. of riboflavin and 10 mg. of niacin. The difference in vitamin intake was disguised by the use of placebos. Over a period of 161 days the 2 groups showed no noteworthy differential changes. The vitamin restriction was without significant effect on the aspects of "fitness," "health" and personality, but thiamine intake was on the borderline of inadequacy, as indicated by blood pyruvate. There were no signs of deleterious effects from the restriction in riboflavin and niacin. Eight young men subsisted for thirty-three days on a diet adequate except in B vitamins, which were extremely limited: 0.008 mg. of thiamine, 0.013 mg. of riboflavin and 0.1 mg. of riboflavin per thousand calories. Daily capsules provided adequate B vitamins to 4 of the men; the other 4 men received placebos. Half of the men in each group had subsisted for six months previously on an adequate intake of all nutrients except B vitamins, which were restricted to about one third of the National Research Council recommended allowances. The other men had received the same diet plus adequate supplements of the B vitamins. Accordingly there were 2 men in each of four groups with reference to previous and present diets: restricted-deficient, control-deficient, restricted-control, control-control. Anorexia, and later nausea and vomiting, began in the restricted-deficient men after about eight days and progressed to almost complete inability to eat in eighteen to twenty days. The control-deficient

men showed the same changes, with a lag of five or six days. After twenty-three days the men in both of these groups were given daily supplements of thiamine only, with a rapid return of appetite and regression of other symptoms and functional abnormalities. The restricted-deficient men showed progressive and eventually severe deterioration in endurance, coordination and "fitness," with trifling or absent effects on strength, vision, hearing and speed. Similar results were obtained with the control-deficient men, with a lag of about a week. Simple muscle efficiency was unaltered, but cardiovascular capacity and respiratory efficiency were reduced by the deficiency. All of the deficient men showed pronounced tachycardia in work, but only 1 of them developed resting bradycardia. Intellectual functions were resistant to the deficiency, but there were changes in personality toward apathy, depression and hypochondriasis. Thiamine was much the most important B vitamin in this acute restriction. The bodily stores of thiamine are effective for at most a few weeks under these conditions. The present results confirm the conclusion that the restricted diet was less than adequate or optimum, at least in thiamine, but that such inadequacy represented only a loss of a few days in the margin of safety.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

54:1-108 (July) 1945

- Infantile Cortical Hyperostoses: Preliminary Report on New Syndrome. J. Caffey and W. A. Silverman.—p. 1.
- Hypertrophic Pyloric Stenosis in Infants: Roentgenologic Differential Diagnosis. R. F. Miller and H. W. Ostrum.—p. 17.
- Gastric Volvulus and Other Abnormal Rotations of Stomach. J. B. Hamilton.—p. 30.
- Osteochondritis Dissecans of Supratrochlear Septum of Humerus. W. E. Cryser and H. S. Morton.—p. 41.
- Neoplasms Observed in Army General Hospital: Report of 3 Cases: Two Cysts of Mediastinum and Fibroma of Stomach. A. J. Present.—p. 47.
- Interstitial Emphysema and Pulmonary Collapse Complicating Fractures of Skull. P. J. Hodes and R. A. Groff.—p. 54.
- Visualization of Coronary Arteries in Dogs. N. Grossman.—p. 57.
- Irradiation Failures in Early Cervical Cancer: Improved Irradiation or Return to Surgery. F. Buschke and S. T. Cantril.—p. 60.
- Slide Rule for Determination of Dosage from Linear Radium Applicators. G. Rudinger.—p. 72.
- Nomogram for Evaluation of Intermittent Radon Treatment. G. Rudinger.—p. 78.

Irradiation Failures in Early Cervical Cancer.—Buschke and Cantril say that even if statistically the superiority or at least equality of radiation therapy for the operable stages 1 and 2 so far has not been disproved, the fact remains that 20 per cent of stage 1 and at least 30 per cent of stage 2 cases are not cured by even the most competent and skilful radiation therapists. The question arises whether these cases represent types of the disease essentially not suitable for radiation therapy and, if so, whether possibly some of these lesions could be controlled by radical hysterectomy. Taussig's recommendation of an iliac lymphadenectomy in conjunction with irradiation, and Meigs's recent resumption of the Wertheim operation for selected cases have again stimulated interest in this problem. In 1940 the authors analyzed the failures in cases treated at the Swedish Hospital Tumor Institute between 1935 and 1938. They admit that there is a group of cases of epidermoid carcinoma of the cervix with peripheral lymph node involvement in the pelvis in which radiation therapy apparently will not accomplish a cure and in which theoretically surgery would be more promising. In their own series 4 cases out of 79 belong in this group. Three of these would not have been accepted for surgery according to Meigs's rigid standards. In Meigs's own series 9 patients belong in this group out of 65 on whom he operated. This means that 3 out of 20 would be saved, while 17 would be subjected to unnecessary surgery. Since it is impossible to recognize these cases prior to treatment, it is most likely that the actual survival rate by surgery would be smaller than if radical radiation therapy was instituted. The survey of their own material has shown that more cases were not controlled by irradiation because of some avoidable inadequacies of treatment than would have been saved by surgery of cases essentially unsuitable for irradiation. They think that improvement of radiation therapy by attention to technic, by the elimination of inadequate procedures and by the adaptation of the procedure to the individual requirements will probably save more patients than a return to surgery.

American Journal of Surgery, New York

69:1-140 (July) 1945

- Allantoin-Sulfanilamide Ointment in Surgery. S. D. Spotts and J. B. Davis.—p. 4.
 Carotid Body Tumors: Review of Literature, with Report of 2 Cases. A. M. Dickinson and C. A. Traver.—p. 9.
 Cancer of Breast: End Results in 122 Cases. J. G. Garland.—p. 17.
 Dermoplasty of War Wounds of Lower Leg. J. F. Pick.—p. 25.
 Anatomic and Functional Reductions of Fractures of Pelvis. F. W. Carruthers.—p. 39.
 Evolution of Gastrostomy. J. L. Spivack.—p. 47.
 Early Extirpation of Uterus in Persistent Atony with Postpartum Hemorrhage. H. M. Rabinowitz and N. Reibstein.—p. 66.
 Working Basis for Treatment of Head Injuries! T. L. Hyde.—p. 73.
 Healing Rate of Human Skin Determined by Measurement of Electrical Potential of Experimental Abrasions: Study of Treatment with Petrolatum and with Petrolatum Containing Yeast and Liver Extracts. T. C. Barnes.—p. 82.
 Operating Room Explosions. R. L. Waugh and L. Bond.—p. 89.
 Tourniquet: Its Clinical Application. R. T. McElvenny.—p. 94.
 *Normal Physiologic Douches. K. J. Karnaky.—p. 107.
 Clinical Value of Functional Liver Tests. A. O. Wilensky.—p. 116.

Douches.—Karnaky points out that many physicians are still prescribing alkaline substances, sodium perborate, borax, sodium bicarbonate, potassium permanganate, magnesium sulfate and sodium chloride or a combination of these, in the treatment of vaginal leukorrhea or as a cleansing douche when it is scientifically established that the normal hydrogen ion concentration of the adult vagina is acid. He thinks that acid douches (pH 3.0 to 5.0) should be used, because with pathologic changes there is hypoacidity of the vagina, and, as these changes increase, the hydrogen ion concentration approaches the alkaline side. Alkaline douches favor the growth of pathogenic organisms. The best douche found in ten years of research is vinegar. The patient should be instructed to use 5 tablespoons of vinegar to the douche bag if there is an acute vaginitis. After two weeks, 2 to 3 tablespoons is used instead of 5. For an ordinary cleansing douche 3 tablespoons of vinegar should be added to the douche bag.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

29:381-486 (July) 1945

- Venereal Disease Control in Europe, with Particular Reference to Scandinavian Countries During World War II: Postwar Problems from Point of View of Maritime Nations. T. Guthe.—p. 381.
 Experiment in Venereal Disease Education in Negro Schools. C. M. Carpenter, Evelyn Rahim, L. A. Kirkendall and M. E. Winchester.—p. 392.
 Transfer of Penicillin into Cerebrospinal Fluid Following Parenteral Administration. W. McDermott and R. A. Nelson.—p. 403.
 Experimental Syphilis in Different Species of Native American Mice. U. J. Wile and S. A. M. Johnson.—p. 416.
 Experimental Syphilis in the Golden Hamster. U. J. Wile and S. A. M. Johnson.—p. 418.
 Abducens Palsy (with Subsequent Recovery) Following Lumbar Puncture. H. M. Robinson Jr.—p. 422.
 *Secondary Syphilis Following Penicillin Therapy of Gonorrhea. D. W. Atcheson.—p. 423.
 Diagnosis of Granuloma Inguinale Made by Examination of Tissue Stained with Hematoxylin and Eosin. Report of Case. S. H. Polayes and L. Williams.—p. 425.
 Effect of Fever on Toxicity of Mapharsen for Rabbits. R. A. Boak, F. L. Dorn and C. M. Carpenter.—p. 428.
 Late Neurosyphilis in North American Negroes and Whites. W. R. Kirschbaum.—p. 432.
 Treatment of Venereal Diseases in European Theater of Operations. D. M. Pillsbury.—p. 447.
 Studies on Syphilis in Eastern Health District of Baltimore City: VI. Prevalence in 1939 by Race, Sex, Age and Socioeconomic Status. E. G. Clark.—p. 455.

Secondary Syphilis Following Penicillin Therapy of Gonorrhea.—Atcheson reports a case which demonstrates the inadequacy of treating syphilis with the same dosage of penicillin used for gonorrhea. The patient was under complete control during the entire period of observation. He was not allowed off the Army air base; hence the possibility is eliminated of syphilitic infection after the penicillin was administered. The patient demonstrated a moderate reaction to penicillin. He was discharged from the hospital eleven days after penicillin treatment. Two weeks after discharge from the hospital, twenty-five days after the penicillin was administered and thirty-two days after the supposedly infecting sexual exposure, the patient developed a maculopapular skin rash confined to the penis and scrotum. Dark field examination was positive for *Treponema pallidum*. The blood serologic test

was now positive. Diagnosis of secondary syphilis was made and the patient treated with the routine Army course of oxophenarsine hydrochloride and bismuth subsalicylate. His response has been satisfactory and uneventful.

Annals of Surgery, Philadelphia

122:1-128 (July) 1945

- Traumatic Osteomyelitis: Use of Skin Grafts—Part I. Technic and Results. R. P. Kelly, L. M. Rosati and R. A. Murray.—p. 1.
 Experiences with 156 Penetrating Wounds of Head. W. C. Gaynor and J. Gurwitz.—p. 12.
 Experiences with Injuries and Diseases of Bone in World War II. W. M. Weeden and H. D. Stein.—p. 23.
 Experiences with Sympathectomy in Peripheral Lesions. J. A. Kirtley Jr.—p. 29.
 Resurfacing of Dorsum of Hand Following Burns. A. W. Farmer and F. M. Woolhouse.—p. 39.
 Cholecystogastroduodenocutaneous Biliary Fistula: Case Report. H. K. Gray and W. S. Sharpe.—p. 48.
 Solitary Diverticulitis of Cecum: Report of 2 Cases. J. W. Gatewood.—p. 52.
 Continuous Traction Screw for Fixation of Fractures of Hip: Review of 23 Cases. H. Virgin Jr. and W. R. MacAusland.—p. 59.
 Recurrent Inguinal Hernia. H. L. Skinner Sr. and R. D. Duncan.—p. 68.
 Present Status of Injection Treatment of Hernia. R. L. Maier.—p. 85.
 Cancer of Face: Clinical and Statistical Study of 1,062 Cases. T. De Chohnoky.—p. 88.
 Traumatic Aneurysm of First Portion of Left Vertebral Artery: Case Report. C. J. Heifetz.—p. 102.
 Stricture of Female Urethra with Lymphopathia Venerea: Lymphogranuloma Inguinale. R. Tauber.—p. 111.
 *Serum Amylase Findings in Chronic Alcoholic Patients with Acute, Severe Abdominal Symptoms. S. J. Carter.—p. 117.
 Myoblastoma: Case Report. T. G. Orr Jr.—p. 122.

Serum Amylase in Chronic Alcoholic Patients with Acute Abdominal Symptoms.—Carter reports 11 cases in which there was a history of chronic alcoholism and the symptoms on admission were vomiting, severe pain in the epigastrium and rigidity of the abdominal muscles, especially in the upper half, with or without tenderness in the epigastrium. In this type of case, members of the staff usually made the diagnosis of "acute alcoholic gastritis," while not infrequently an unnecessary exploratory celiotomy was done for a possible surgical lesion. In 4 of the cases operations were performed, and in each instance edema about the pancreas was noted and the peritoneal fluid was of a thin sanguineous character. In the remaining 7 cases the high amylase findings were the chief factor in deciding against operative intervention. These 7 patients were discharged well. In cases 2 and 3 amylase readings were made of the peritoneal fluid in addition to the readings in the serum, while in cases 3, 6 and 7 determinations were also made on the urine. The peritoneal fluid readings and urine amylase readings were above normal. The author concludes that serum amylase determinations should be made on all chronic alcoholic patients if operative intervention is contemplated because of severe, acute abdominal symptoms.

Archives of Physical Medicine, Chicago

26:389-474 (July) 1945

- Combined Treatment of Rhizomelic Spondylitis (Marie-Strümpell Arthritis): Orthopedic, Roentgen Ray and Physical Therapy. L. D. Baker.—p. 389.
 *Challenge of Crutches: Methods of Crutch Management. G. G. Deaver and Mary E. Brown.—p. 397.
 Some Effects of War on Medicine. E. J. Jaqua.—p. 404.
 Measurement of Joint Motion. Catherine C. West.—p. 414.

Crutches.—According to Deaver and Brown, good crutch walking requires a systematic program with competent instruction. This program should include a muscle test to judge the subject's joint movements and strength, exercises to develop the muscle groups needed for crutch management, proper selection of the crutches to be used, correct measurement for the crutches and determination of the crutch gaits suitable to the disability. It has been stated that a good rule for measuring crutches is to measure the distance from the patient's axilla to the floor and add 2 inches to this length. Another author indicates that crutches should measure the length from axilla to heel plus 4 inches; the handle bar should be about 4 inches less than the inside length of the area from the top of the crutches. Another opinion concerning the placement of the hand pieces is that "the distance between the top of the crutch and the hand piece should be such that by bearing down

hard on top of the crutch with one's armpit the wrist can be flexed to a right angle under the hand piece. This author also states that for the more helpless patients who use the rocking method the crutches must be longer. A dealer in crutches has figured out that the proper length of crutches will probably be 77 per cent of the height of a patient.

Canadian Journal of Public Health, Toronto

36:261-304 (July) 1945

- *Tuberculosis Survey Among Ottawa Federal Civil Servants. S. A. Holling.—p. 261.
Recording Child Hygiene Activities in Calgary. W. H. Hill.—p. 268.
Construction and Use of Dietary Standards: Statement Adopted by Canadian Council on Nutrition.—p. 272.
Nutrition Survey in Ste. Anne de Bellevue, Quebec. Florence A. Farmer and Margaret S. McCreedy.—p. 276.
Mortality Reductions in Ontario, 1900-1942. N. E. McKinnon.—p. 285.

Tuberculosis Survey Among Ottawa Civil Servants.—

A tuberculosis survey of the Ottawa federal civil servants which lasted from Sept. 20, 1943 to March 31, 1944 revealed that among 30,260 civil servants there were 120 cases of active tuberculosis. The incidence of active tuberculosis found in this survey of what might be called a selective group is 0.39 per cent, or roughly 4 in every thousand persons examined. This was three times the average found in other Ontario surveys in 1943. Some of the reasons mentioned by Holling for the high percentage of active cases found in this survey are (a) the influx of people to the city of Ottawa and district from other provinces and sections of Ontario where the incidence of tuberculosis is much higher than the average for the province as a whole, (b) the crowded living conditions in Ottawa and (c) certain economic factors. In only 10 per cent of the 80 newly discovered cases analyzed had a physician been consulted within the past year, and a considerable number gave a history of contact and pleurisy. Also there were 32 previously known cases which were shown to have become reactivated. It is apparent from these facts that preventive services are inadequate.

Endocrinology, Springfield, Ill.

36:355-438 (June) 1945

- Metabolism of Steroid Hormones: Metabolism of Testosterone in Normal Woman. Sara Schiller, R. I. Dorfman and M. Miller.—p. 355.
Estrogens, Thiourea, Thiouracil and Tolerance of Rats to Simulated High Altitudes (Low Atmospheric Pressures). E. D. Goldsmith, A. S. Gordon and H. A. Charipper.—p. 364.
Studies on Hormonal Control of Estrous Phenomena in Anestrous Ewe. H. H. Cole, G. H. Hart and R. F. Miller.—p. 370.
Effect of Adrenal Cortical Hormone Therapy on Altitude Tolerance. G. W. Thorn, M. Clinton Jr., B. M. Davis and R. A. Lewis.—p. 381.
Study of Fractionation of Neutral Urinary Steroids by Adsorption on Magnesium Oxide. W. Bowman.—p. 391.
Involution of Adrenal Cortex in Rats Fed with Thiouracil. E. J. Baumann and D. Marine.—p. 400.
Studies on Mechanism of Hypercholesterolemia and Hypercalcemia Induced by Estrogen in Immature Chicks. W. Fleischmann and H. A. Fried.—p. 406.
Effect of Androgen on Prostate in Starvation. R. Pazos Jr. and C. Huggins.—p. 416.
Effect of Pretreatment on Relative Potency of 11-Desoxycorticosterone Acetate and 17-Hydroxy-11-Dehydrocorticosterone in Muscle Work Test. D. J. Ingie, M. L. Pabst and M. H. Kuizenga.—p. 426.

Florida Medical Association Journal, Jacksonville

32:1-54 (July) 1945

- Rheumatic Fever in Florida. T. F. Hahn.—p. 27.
History of Medicine in Duval County: Part V. W. Merritt.—p. 31.
32:81-102 (Aug.) 1945
Tumors of Male Breast. J. C. Pate.—p. 81.
Treatment of Typhus Fever. Preliminary Report. T. H. Davis.—p. 84.

Illinois Medical Journal, Chicago

87:269-322 (June) 1945

- Coronary Outlook. R. S. Berghoff.—p. 281.
Tuberculosis: New Postwar Public Health Problem. E. A. Diszczek.—p. 284.
Control of Tuberculosis in Wartime. M. Pollak.—p. 292.
Neurologic Symptoms of Infectious Mononucleosis. T. J. Coogan, D. L. Martin and W. H. Mathews.—p. 296.
Acute Pyogenic Osteomyelitis of Facial Bones. G. J. Greenwood.—p. 302.
Ocular Brucellosis. A. C. Krause.—p. 306.

Journal of Bone and Joint Surgery, Boston

27:361-546 (July) 1945. Partial Index

- Treatment of Malunited Colles's Fractures. J. S. Speed and R. A. Knight.—p. 361.
Surgical Anatomy of Flexor Tendons of Wrist. E. B. Kaplan.—p. 368.
Rotational Deformity in Treatment of Fractures of Both Bones of Forearm. E. M. Evans.—p. 373.
Operation for Paralysis of Serratus Anterior. D. C. Durman.—p. 380.
*Treatment of Nonunion or Delayed Union of Fractures by Means of Massive Onlay Grafts Fixed with Vitallium Screws. D. M. Meekison.—p. 383.
Correction of Hallux Valgus by Metatarsal Osteotomy. F. B. Hawkins, C. L. Mitchell and D. W. Hedrick.—p. 387.
Healing Time in Fractures of Shafts of Tibia and Femur. R. V. Funsten and R. W. Lee.—p. 395.
Echinococcosis of Bone. M. B. Howorth.—p. 401.
Analysis of 100 Consecutive Arthrotomies for Traumatic Internal Derangement of Knee Joint. G. T. DuToit and T. B. Enslin.—p. 412.
Traumatic Degeneration of Articular Cartilage of Patella. R. Soto-Hall.—p. 426.
Pneumothorax of Knee: Diagnostic Aid in Internal Derangements. W. H. McGaw and E. C. Weckesser.—p. 432.
Lateral Dislocation of Patella: Correction by Simultaneous Transplantation of Tibial Tubercle and Semitendinosus Tendon. H. R. McCarroll and J. R. Schwartzmann.—p. 446.
Delayed Primary Closure of Wounds with Compound Fractures. M. Cleveland and J. A. Grove.—p. 452.
Experience with Whole Blood and Plasma. F. H. Coulson.—p. 457.
Transportation of Wounded Soldier. J. G. Manning.—p. 458.
Intervertebral Disk: Its Microscopic Anatomy and Pathology: Part III. Pathologic Changes in Intervertebral Disk. M. B. Coventry, R. K. Gormley and J. W. Kernohan.—p. 460.
Intervertebral Foraminotomy for Relief of Sciatic Pain. H. Briggs and J. Krause.—p. 475.
*Chronic Melioidosis: Case Showing Multiple Lesions of Bones, Joints and Lungs. J. H. Mayer.—p. 479.
Use of Sulfonamides in Compound Fractures. M. S. Eveleth.—p. 486.
Simplified Surgical Approach to Posterior Tibia for Bone Grafting and Fibular Transference. P. H. Harmon.—p. 496.

Onlay Grafts Fixed with Vitallium Screws.—Meekison points to the almost universally good results obtained by the massive onlay graft for delayed union or nonunion of long bones. The massive onlay graft is a full-thickness piece of cortex of autogenous bone applied to the surface of the fragments (across the ununited gap) but not countersunk into the recipient fragments. Union takes place between the fragments and the graft and directly across the gap. Firm fixation is provided, which is essential. Fixation of the onlay graft has been done with aluminum, bronze and silver wire and kangaroo tendon. The author is not in sympathy with the use of these. Vitallium screws have greatly simplified the procedure. The massive onlay graft, fixed with vitallium screws, meets all the requirements—internal fixation, supplementary bone, osteogenic material and the stimulation of osteogenesis. In 170 cases in which this method of grafting the long bones has been employed, Meekison has had only 1 failure.

Chronic Melioidosis.—According to Mayer, melioidosis is an infective disease occurring in Burma, Ceylon, French Indo-China, the Netherlands East Indies, Malaya and Siam. It is a disease of rodents and man; it is assumed that infection in man is acquired from infected rodents, possibly by contaminated food or water supplies. The causative organism was named *Bacillus whittmori* by Stanton and Fletcher in 1921 but was assigned to the *Pfeifferella* group of bacteria by Topley and Wilson and is now known as *Pfeifferella whittmori* or *Malleomyces pseudomallei*. In most cases the disease has been acute, with symptoms simulating cholera or typhoid, and has proved fatal from septicemia within a few days or weeks. At necropsy the commonest findings have been areas of consolidation and small abscesses in the lungs, and abscesses or areas of caseation in the spleen, liver and kidneys. The chronic form of this disease is far less common. The author reports chronic melioidosis in a man aged 33. Some of the lesions primarily involved bone and others cartilage. Much of the patient's improvement may be attributed to the combination of autogenous vaccine and sulfadiazine therapy. An important principle in the treatment of melioidosis is that the abscesses, unlike those of tuberculosis, should be drained early and adequately. Abscess formation was accompanied by a deterioration in the general condition, which improved following the institution of adequate drainage.

Journal Industrial Hygiene & Toxicology, Baltimore

27:123-146 (May) 1945

- Carbon Disulfide and Hydrogen Sulfide: Clinical Study of Chronic Low Grade Exposures. H. H. Rubin and A. J. Arieff.—p. 123.
Acute and Subacute Toxicity of Di(2-Ethylhexyl) Phthalate, with Note on its Metabolism. C. B. Shaffer, C. P. Carpenter and H. F. Smith Jr.—p. 130.
Rapid and Simple Method for Measuring Small Amounts of Cyanide Gas in Air. W. A. Robbie and P. J. Leinfelder.—p. 136.
Study of Perchloroethylene Degreasers. R. C. Crowley, C. B. Ford and A. C. Stern.—p. 140.

Journal of Nat. Cancer Inst., Washington, D. C.

5:383-454 (June) 1945

- Fate of C³H Milk Influence in Mice of Strains C and C57 Black. H. B. Andervont.—p. 383.
Relation of Milk Influence to Mammary Tumors of Hybrid Mice. H. B. Andervont.—p. 391.
Susceptibility of Young and of Adult Mice to Mammary Tumor Agent. H. B. Andervont.—p. 397.
Estrus in Virgin Strain C3H (High Tumor) and Virgin Strain (Low Tumor) Mice and in Reciprocal (A × C3H) F₁ Hybrids. Margaret K. Deringer, W. E. Heston and H. B. Andervont.—p. 403.
Polarographic Response of Deproteinized Serum of Individual Rabbits Before and After Implantation with Brown-Pearce Carcinoma. B. B. Westfall, J. W. Thompson and D. Burk.—p. 407.
Further Studies on Urethane Induced Pulmonary Tumors. P. S. Henshaw and H. L. Meyer.—p. 415.
Implications from Studies with Physical Carcinogens. P. S. Henshaw.—p. 419.
Results of Homoplastic, Heteroplastic and Xenoplastic Transplantation of Optic Vesicle in Triturus and Rana. Margaret K. Deringer.—p. 437.
Changes in Organs of Female C3H Mice Receiving Thiourea. A. J. Dalton, H. P. Morris and Celia S. Dubnik.—p. 451.

Journal of Nervous and Mental Disease, New York

102:1-75 (July) 1945

- *Relationship of Intracranial Pressure and Presence of Blood in Cerebrospinal Fluid to Occurrence of Headaches in Patients with Injuries to Head. A. P. Friedman and H. H. Merritt.—p. 1.
*Acute Spinal Epidural Abscess as Complication of Lumbar Puncture. L. Rangell and F. Glassman.—p. 8.
Pathology of Liver in Extraputrid Disease. G. Heilbrunn, O. Felsenfeld and P. Szanto.—p. 19.
Morbidity and Mortality of Patients with Psychosis Due to Cerebral Arteriosclerosis. O. J. Pollak.—p. 27.
Notes on History of American Psychopathological Association. S. W. Hamilton.—p. 30.
Concept of Integration in Psychoanalysis. J. J. Michaels.—p. 54.
Psychodynamics in Criminal Behavior. D. Abrahamson.—p. 65.

Intracranial Pressure and Blood in Cerebrospinal Fluid After Head Injuries.—According to Friedman and Merritt, injuries to the head are often followed by persistent symptoms such as headaches, dizziness, loss of ability to concentrate and irritability. There are two divergent opinions: (1) that the symptoms are the results of structural changes in the brain or functional alteration of its circulation; (2) that they are due to psychologic reaction of the patient to the injury. The authors present data regarding the cerebrospinal fluid pressure and the presence of blood in the cerebrospinal fluid immediately following the injury in 265 patients with acute head injuries. These findings are correlated with the occurrence of headaches during the patient's stay in the hospital and for periods varying from two to twelve months after the injury. The incidence of headaches in the immediate post-traumatic period did not occur in a significantly higher percentage of the patients with an increased cerebrospinal fluid pressure or a bloody cerebrospinal fluid than in those with normal intracranial pressure or a clear spinal fluid. Headaches persisting for longer than two months following the injury occurred in a slightly higher percentage of the patients who had an increased cerebrospinal fluid pressure than in those with a normal pressure immediately following the injury. Headaches persisting for more than two months following the injury occurred in approximately the same percentage of patients who had a bloody cerebrospinal fluid as in those patients who had a clear fluid immediately after the injury. The authors conclude that headaches persisting for several months after a head injury cannot be related directly to the pathology of the brain injury.

Spinal Epidural Abscess Complicating Spinal Puncture.—Rangell and Glassman state that no case of epidural abscess has ever been reported following routine spinal puncture. They report the case of a soldier aged 28 in whom a lumbar puncture was followed successively by excruciating and pro-

gressive root pains, sphincter disturbances and a flaccid paraplegia. Because of localized pain, swelling, tenderness and spasm in the paravertebral muscles, fever, toxicity, systemic signs of infection, and objective findings of a cauda equina syndrome, a diagnosis was made of acute epidural abscess in the cauda equina region. Operation was performed and resulted in the finding of a thick, creamy, white pus in the region of the periosteum of the third and fourth lumbar spinous processes. Laminectomy was performed and the pus was seen to gush from an abscess in the epidural space. Following evacuation of pus a soft rubber catheter was passed cephalad through the epidural space to the level of the tenth thoracic vertebra, and no further pus was obtained. At no time was the dura opened. Sulfanilamide was sprinkled into the wound, and a Penrose drain was inserted upward under the arch of the second lumbar vertebra before closing. Improvement began promptly following the operation. Six weeks later the patient was up in a wheel chair and receiving daily physical therapy. There was a complete return of sensation and sphincter control but only a partial return of motor function.

Rocky Mountain Medical Journal, Denver

42:409-488 (June) 1945

- Experiences in AAF Convalescent Program. W. J. Kennard.—p. 425.
Uses and Abuses of Sulfonamide Therapy: Review. J. J. Waring.—p. 432.
Uses and Untoward Reactions of Sulfonamides in Dermatology. O. S. Philpott.—p. 441.

42:489-559 (July) 1945

- Horner's Syndrome. G. H. Stine and P. Draper.—p. 504.
Medical Service in Industry. L. V. Sams.—p. 507.
Fractures of Elbow. D. W. Boyer and S. A. Gale.—p. 510.
Management of Infertility. C. S. Gydesen.—p. 513.
Management of Pelvic Inflammatory Disease of Gonorrheal Origin. M. R. Gottesfeld.—p. 516.
Transmesenteric Hernia: Case. R. A. Corbett.—p. 519.

Surgery, St. Louis

17:773-900 (June) 1945

- *Succinylsulfathiazole and Phthalylsulfathiazole in Surgery of Colon. E. J. Poth.—p. 773.
Elective Occlusion and Excision of Portal Vein: Experimental Study. A. Brunschwig, R. Bigelow and S. Nichols.—p. 781.
*Blast Injury of Lung: Possible Explanation of Mechanisms in Fatal Cases—Experimental Study. L. M. Carlton Jr., R. A. Rasmussen and W. E. Adams.—p. 786.
Metabolic Alterations Following Thermal Burns: IV: Effect of Treatment with Whole Blood and Electrolyte Solution or with Plasma Following Experimental Burn. W. E. Abbott, Frieda L. Meyer, J. W. Hirshfeld and Grace E. Griffin.—p. 794.
Role of Infection in Shock Produced by Muscle Injury. E. B. Mahoney, J. W. Howland and Kathryn Yackel.—p. 805.
Hydronephrosis: I. Structural Changes. F. Hinman.—p. 816.
Id.; II. Functional Changes. F. Hinman.—p. 836.
Id.; III. Hydronephrosis and Hypertension. F. Hinman.—p. 845.
Principle of Excision and Dissection in Continuity for Primary and Metastatic Melanoma of Skin. G. T. Pack; Isabel Scharnagel and M. Morfit.—p. 849.
Virilism in Women. V. Brito and A. Rivero.—p. 867.
Appendical Peritonitis. A. Ochsner and J. H. Johnston.—p. 873.

Succinylsulfathiazole and Phthalylsulfathiazole in Surgery of Colon.—According to Poth the mortality of surgery of the colon has been reduced more in recent years than is explainable by improvement in surgical technic. The evidence which has accumulated over the past four years indicates that succinylsulfathiazole (sulfasuxidine) and phthalylsulfathiazole (sulfathalidine), when given in adequate doses, are bacteriostatic agents which will produce a significant modification of the bacterial flora of the bowel and that their proper administration will help to give a satisfactory mechanical preparation of the bowel preceding surgical operations while the patient is maintained on an adequate protein and carbohydrate diet. Acylated sulfonamides alter and simplify the bacterial flora of the gastrointestinal tract. The question is raised as to whether such a modification is of practical value in making surgery of the large bowel a safer procedure. The first report on a series of 50 patients receiving succinylsulfathiazole both preoperatively and postoperatively when operations were performed on the colon was by Poth in 1942. No fecal fistulas developed, there were no instances of peritonitis and there were no deaths. In 1943 Allen expressed the opinion that with the use of succinylsulfathiazole there was a tendency to increase the number of single stage operations on the large bowel. By 1945,

this author considers phthalylsulfathiazole the drug of choice for the preoperative management of patients with carcinomas of the colon, because this drug shows no tendency to cause increased hemorrhage from ulcerating lesions. Both emphasize that succinylsulfathiazole and phthalylsulfathiazole are properly used only as aids in colonic surgery and should not encourage a breakdown in surgical principles. So-called aseptic procedures should be used whenever possible, but, when necessary, an open anastomosis can be done with a greater degree of safety than was possible formerly.

Mechanism of Fatal Blast Injury of Lung.—In recent experiments on the production of emphysema by overdistention of the lung with increased intrabronchial pressure it was noted by one of the authors that if the dogs coughed and thus increased the pressure they suddenly died. At necropsies it was noted that air emboli were present in the coronary vessels. Eighteen dogs were subjected to increased intrabronchial pressure. The first group of 8 dogs was subjected to pressures of from 35 to 50 mm. of mercury for a period of a few seconds to fifteen minutes. The second group of 10 animals was subjected to a blast varying from 70 to 110 mm. of mercury. Two animals received a blast of 120 and 240 mm. of mercury, respectively. The animals of the first group died after an episode of coughing. Those of the second group died within a few seconds to three minutes after the blast. The cause of death was found to be air embolism in 15, with pneumothorax as a contributory factor in 8. Pneumothorax appeared to be the sole cause of death in the remaining 3. Other gross findings noted in these animals were similar to those reported in human beings following blast injury. In some patients dying immediately after a blast injury the cause of death has not been adequately explained. Coronary air embolism may be easily overlooked and might well be the cause of death in some cases of blast injury.

War Medicine, Chicago

7:341-436 (June) 1945

- *Malarial Papillitis. R. B. Lewy.—p. 341.
Defects of Pemman as an Emergency Ration for Infantry Troops. R. M. Kark, R. E. Johnson and J. S. Lewis.—p. 345.
Simple External Electrocardiography as Aid in Diagnosis of Coronary Insufficiency: Experiences in Army General Hospital. J. B. Levan.—p. 353.
Some Psychologic Principles of Rehabilitation. F. Lemere.—p. 360.
Experiment in Physical Reconditioning at Camp Crowder. V. A. Mueller Jr. and L. K. Silverman.—p. 365.
War Department Technical Bulletins: Cholera.—p. 371.
Id.: Filariasis (Wuchereria), with Special Reference to Early Stages.—p. 377.
Id.: Cutaneous Diphtheria.—p. 385.
Id.: Amebiasis.—p. 390.
Id.: Schistosomiasis Japonica.—p. 397.

Malarial Papillitis.—The total number of patients examined by Lewy for evidence of papillitis was 60. Some blurring and/or color change in the optic disk was presented by 36, while the other 24 presented no change. Ocular symptoms were usually mild. Many of the patients said that their eyes tired easily. A number stated that they had blurring of their vision at about 50 yards. Many of these patients had headaches, but this had to be discounted as this symptom was common to many patients with malaria who had no ocular changes. Visual loss shown on the Snellen test chart was from 20/15 to 20/20 or 20/20 to 20/25. One patient lost vision to 20/100 in the right eye and 20/400 in the left. It is recognized that the difference between papillitis and papilledema may be slight ophthalmoscopically. It is also recognized that exudate or edema may be present in the neural or supporting tissue of the optic nerve as a product of either inflammation or stasis. This condition is considered a papillitis because of the injected appearance of the nerve head in the majority of the patients and because many showed a disturbance in the ocular physiology, e. g. diminution in visual acuity, reduced peripheral fields and enlarged blind-spot scotomas. No absolute correlation could be made between the amount of papillary change and the number of attacks of malaria. The condition has been observed in patients with one attack and with eighteen. The question may be raised whether medication is the cause. None of this group of patients presented the retinal ischemia, arterial spasm and blindness characteristic of quinine amblyopia, which is often the cause of toxic retinobulbar neuritis resulting in complete central blindness and

pallor of the disk. One patient had a characteristic picture of the nerve head although he had never received quinacrine hydrochloride. The great increase in the use of quinacrine hydrochloride coincided with a drop in the incidence of malaria and papillitis. This should remove suspicion from quinacrine hydrochloride as a causative factor. There were many patients with papillitis that never received pamaquine naphthocate.

Yale Journal of Biology and Medicine, New Haven

17:685-760 (July) 1945

- *Starvation Diabetes: Reason for Use of Glucose in Treatment of Diabetic Acidosis. J. P. Peters.—p. 705.
Diurnal Potential in Maple Tree. H. S. Burr.—p. 727.
Health Services for Hospital Personnel: IV. Typical Year's Experience in Personnel Health Service. A. J. Geiger and Irma M. Biehnen.—p. 735.
Mating in Relation to Pregnancy in Monkey. G. van Wagenen.—p. 745.

Reason for Use of Dextrose in Diabetic Acidosis.—Peters shows that extreme reduction of carbohydrate in the diet lowers the tolerance for dextrose. The phenomena of starvation diabetes have been attributed to variations in the secretion of insulin by those who hold that every fluctuation in the combustion of carbohydrate depends on a change in the secretory activity of the islands of Langerhans. Such a theory is not compatible with the facts. Although the exact *modus operandi* of insulin on the metabolism of carbohydrate is not known, it has been established that its preponderant action is to accelerate oxidation of muscle glycogen and that it has no direct effect on the formation or breakdown of liver glycogen. Every substance that is capable of forming carbohydrate is converted to glucose by the depancreatized animal. Since almost all compounds except dextrose must be transformed to glycogen by the liver as a preliminary step in the conversion to glucose, this in itself constitutes proof that hepatic glycogenesis does not require insulin. Among the disorders encountered when the combustion of carbohydrate is impaired or retarded, the most prominent are increased protein catabolism and ketosis. The literature on diabetes in the era from 1915 until insulin was in general use abounds in papers in which acidosis is attributed to the failure of patients to adhere to dietetic regimens that could only have led to slow death from malnutrition or from tuberculosis and other diseases that prey on the malnourished. The aim of treatment was to keep the urine free from sugar, regardless of the nutritive needs of a patient. It was known that although loss of sugar in the urine increased progressively as the carbohydrate in the diet was raised above the amount required to induce glycosuria, there was a wide zone within which only a part of added increments of sugar were excreted, another example of the acceleration of carbohydrate utilization by hyperglycemia. This led some to advocate the prescription of enough carbohydrate to insure the utilization of the largest quantity that could be accomplished without producing distressing polyuria. With the advent of insulin such expedients were no longer necessary. Nevertheless, the mental attitude, including the doctrine that ketosis is the wages of dietary sin, has been slow in dying. Diabetic acidosis and the coma in which it culminates mark the most extreme diabetic state. The most urgent therapeutic indications are restoration of the fluid and salt supplies of the body and the integrity of the circulation and elimination of the ketosis and glycosuria which are responsible for the salt and water depletion. Reversal of the metabolic disorder requires the administration of insulin and the provision of sugar. The routine prescribed for the patient in diabetic acidosis consists in the injection of 50 units of insulin. An intravenous infusion of 500 cc. of 10 per cent dextrose solution is then begun, together with subcutaneous injection of isotonic solution of sodium chloride. The patient is prohibited from receiving anything by mouth. After the first priming dose of 50 Gm., dextrose is given intravenously at the rate of about 10 Gm. per hour with doses of 20 to 40 units of insulin at the same intervals until the blood sugar begins to descend definitely. At this time dextrose is given at a faster rate (about 20 Gm. per hour), while the insulin is reduced to half or less of its earlier dosage, according to the course of the blood sugar. Oral administration of fluids is not begun until the patient has been completely conscious and entirely free from all gastrointestinal symptoms for from two to six hours.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian and New Zealand J. Surgery, Sydney

14:219-270 (April) 1945

Subtotal Colectomy. H. Devine.—p. 219.

Headache and Heterophoria Among Soldiers. H. Coverdale.—p. 231.
Results of Operations for Peptic Ulcer: Investigation of Cases Over a Ten Year Period at the Royal Melbourne Hospital. R. S. Lawson.—p. 233.

*Malignant Exophthalmos or Exophthalmic Ophthalmoplegia. C. Robertson.—p. 262.

Treatment of Battle Casualties in Central Mediterranean Area. E. Button.—p. 266.

Surgical Approach to Hydatid Cysts of Right Dome of Liver. S. C. Fitzpatrick.—p. 269.

Malignant Exophthalmos.—Robertson reports 9 cases in which exophthalmos increased in spite of the relief of the toxic symptoms. The suggestion that some different factor is at work in the production of malignant exophthalmos, as against the exophthalmos of ordinary toxic diffuse goiter, receives strong presumptive evidence when we compare the age and sex grouping in the two conditions. Toxic diffuse goiter is a disease of early adult life and is much more common in females, while in the malignant type exophthalmos occurs in patients aged 40 years or over and sex incidence is almost reversed. Of the 9 patients 6 were men and 3 women. In many cases the disease gradually dies out; but it often leaves the patient with an unsightly deformity and sometimes double vision. Only occasionally has a complete regression of the exophthalmos occurred. In other cases the condition progresses until the disorganization of the eyeball is so great that excision of the globe has to be performed. It is now generally accepted that there is an edema of all the orbital tissues outside the globe, and this increase in size of the orbital contents pushes the eyeball forward. It also restricts the free movements of the eyeball. It seems certain that the hormone responsible for the orbital edema is different from the one which produces the other signs of thyrotoxicosis. Since edema is a sign of water imbalance and since water balance is influenced by the pituitary gland, a pituitary hormone may be involved. Robertson treated 4 patients with Naffziger's method of decompression of the orbit; 1 had excision of the stellate ganglion; 2 had high voltage x-ray therapy to the pituitary gland. None of these methods produced the desired results; some patients lost 1 or both eyes. Three patients, in whom the metabolic rate was slightly minus following thyroidectomy, were given thyroid when the eyelids became edematous and ophthalmoplegia appeared. The resulting increase in the metabolic rate increased the loss of body fluids and the eyes receded. In 5 cases in which no surgical measures were adopted the treatment consisted in raising the basal metabolic rate so as to increase water excretion. In all of them the disease has been controlled.

British Journal of Dermatology and Syphilis, London

57:85-124 (May-June) 1945

Sulfanilamide Determination in Spontaneous and Cantharidin Blisters in Vesicular Affections of Skin (Pemphigus, Dermatitis Herpetiformis, Herpes Gestationis, Epidermolysis Bullosa Hereditaria). A. Dostrovsky and F. Sagher.—p. 85.

*Treatment of Sycosis Barbae by Penicillin Cream. A. Burrows, B. Russell and H. B. May.—p. 97.

Relationship of Acne and Hypertrichosis. E. L. Cohen.—p. 102.

Penicillin Cream in Sycosis Barbae.—Burrows and his co-workers report observations on 21 patients in whom they used penicillin cream. When bacteriologic examination had disclosed that the predominant organism was penicillin sensitive the patient was provided with a pot of penicillin cream containing 200 units of penicillin per gram. The sterile cream base can be kept in screw capped jars indefinitely, and when penicillin cream is needed a jar can be warmed to 60 C. and the penicillin solution added to obtain the concentration required. Little stirring is necessary, as the penicillin diffuses readily in the cream base. The patient was instructed in the technic of the aseptic removal of the cream from the jar. A knife or a spoon can be sterilized by boiling in water for three minutes and cooled under a running tap; the cream is removed from the

jar and spread on clean lint and thence applied thinly to the affected area twice a day. Of the 21 cases of sycosis barbae investigated bacteriologically, 19 were caused by a penicillin sensitive strain of staphylococcus. Of 13 cases with a history of more than one year 6 were cleared in an average time of six weeks and 6 were improved over an average period during the same period. Of 6 cases with a history of less than one year 4 were cleared in an average time of two and one-half weeks and 1 was improving over a period of five weeks. No improvement resulted from the treatment of 2 cases due to insensitive strains of bacteria. In order to lessen the tendency to relapses the authors recommend (1) application of the penicillin cream to the anterior nares as well as to the skin of the beard area, (2) treatment of nasal discharges, blepharitis, or otitis media or externa if present, (3) treatment of any other manifestations of the seborrheic state, (4) elimination of foci of sepsis in the throat, teeth and sinuses, (5) continuation of treatment for a few weeks after apparent cure, (6) use of the cream prophylactically after relapses or if nasal swabs remain persistently positive, (7) instruction of the patient to discard his infected shaving brush and face flannel or sterilize them by boiling or to use a brushless shaving cream and (8) consideration in severe cases of the use of x-ray epilation in conjunction with penicillin.

British Heart Journal, London

7:57-106 (April) 1945

Heart Block Following Diphtheria. D. G. Leys.—p. 57.

Auricular Fibrillation and Auricular Flutter in Diphtheria. C. Neubauer.—p. 59.

*Heart Block and Simulation of Bundle Block in Diphtheria. H. Cookson.—p. 63.

*Electrocardiographic Changes and Effect of Niacin Therapy in Pellagra. M. Rachmilewitz and K. Braun.—p. 72.

*Blood Volume Determinations with Radioactive Phosphorus. G. Nylin.—p. 81.

Sinus Bradycardia with Cardiac Asystole. R. S. B. Pearson.—p. 85.

Ligation of Patent Ductus Arteriosus. G. Bourne.—p. 91.

Ligation of Patent Ductus Arteriosus. T. East.—p. 95.

Morphine Hypersensitivity in Kyphoscoliosis. R. Daley.—p. 101.

Transient Heart Block and Coronary Occlusion in Pleural Shock. D. R. Cameron.—p. 104.

Heart Block in Diphtheria.—Cookson investigated 83 cases of diphtheria and took cardiograms at intervals throughout the illness. In 63 patients, or more than three fourths, the cardiogram was abnormal. Ten of these showed some defect of conduction; the others, inversion of T in one or more leads. Other abnormalities commonly seen were axis shift, slurring and slight widening of QRS, and bizarre P waves. Clinical and cardiographic findings are given of 8 cases showing conduction changes. Of 4 with latent block, a prolonged PR interval has persisted in 1 for five months. Bundle branch block appeared in 4 unimmunized children aged 12 or less, and all died; complete block was recorded in 1 of the 4. In 2 others bizarre ventricular complexes were found in association with a passive ectopic rhythm; at first sight these suggest a bundle branch lesion: but, like the short PR, wide QRS syndrome, which seems a related condition, these changes do not appear to have prognostic significance.

Electrocardiographic Changes and Niacin in Pellagra.

—Rachmilewitz and Braun studied the effect of niacin therapy on the cardiographic changes in 27 patients suffering from pellagra. In 16 of them with pronounced visceral manifestations of the disease the response to niacin was prompt; the cardiogram improved or returned to normal after several days of treatment. In some cases thiamine was given without any effect; these cases responded promptly to subsequent niacin treatment. In 2 cases complicated by severe hypoproteinemia the response to the first trial with niacin was slight or absent. Only after restoration of blood proteins was the effect of niacin on the cardiographic changes observed. In 9 cases in which only skin lesions were present no cardiographic abnormalities were found and no changes followed treatment.

Blood Volume Determinations with Radioactive Phosphorus.—By the application of a new method worked out by Hevesy and his co-workers, employing blood corpuscles labeled with radioactive phosphorus, Nylin determined the circulating blood volume and on both normal persons and patients with

cardiac defects with and without failure. The prerequisite for the determination of the circulating blood volume is that the dilution curves can be established and thereby the time when equilibrium appears. The results in each case were based on the mean values of a number of determinations. The mean value for the amount of the circulating blood corpuscles in normal cases was found to be 1,850 cc., 1,998 Gm., or 33.4 Gm. per kilogram of body weight. The mean value for the compensated cases is in agreement with the normal values at 1,795 cc., 1,939 Gm. and 31.8 Gm. per kilogram of body weight. The total blood volume in the normal cases is 73.5 cc. per kilogram of body weight and in the compensated cases 71.8 cc. Two cases of heart failure—and particularly 1 of them—showed a considerable increase in both the amount of blood corpuscles and the circulating blood volume. The other case has been followed with repeated determinations after all signs of failure had disappeared, a great decrease in the circulating blood volume of no less than 28 per cent taking place simultaneously with the appearance of the interesting phenomenon that the amount of red blood corpuscles also decreased by 18 per cent.

British Journal of Industrial Medicine, London

2:65-124 (April) 1945

- Health Problems in the Merchant Navy. G. J. Carr.—p. 65.
Some Early Effects of Exposure to Trinitrotoluene. Alice Stewart, L. J. Wits, G. Higgins and J. R. P. O'Brien.—p. 74.
Determination of Air Borne Trinitrotoluene, Tetrayl and Dinitrotoluene. W. M. Cumming and W. G. D. Wright.—p. 83.
Study of Absence from Work Among Women in War Factory. S. Wyatt.—p. 86.
Asthma Caused by Complex Salts of Platinum. D. Hunter, R. Milton and K. M. A. Perry.—p. 92.
Determination of Traces of Platinum and Palladium in Atmosphere of Platinum Refinery: Combined Chemical and Spectrographic Method. S. J. R. Fothergill, D. F. Withers and F. S. Clements.—p. 99.
Therapeutic Use of Sodium Chloride in Industry. D. Stewart.—p. 102.

Journal of Mental Science, London

91:153-266 (April) 1945

- What is Meant by Personality? E. L. Hutton.—p. 153.
Study on Some Clinical Aspects of Relationship Between Obsessional Neurosis and Psychotic Reaction Types. E. Stengel.—p. 166.
Masquerading in Uniform: A Wartime Form of Psychopathic Behavior. H. Stalker.—p. 188.
Report of Case of Bilateral Degeneration of the Globus Pallidus. R. Mowbray and H. K. Fidler.—p. 195.
Experience with a Simplified Lightweight Apparatus for Electrical Induction of Convulsions. G. Caplan.—p. 200.
Technic of Child Psychiatry. Kathleen Todd.—p. 206.
Relation of Histamine Headache to Postconfusional and Psychogenic Headache. M. N. Pal.—p. 213.

Masquerading in Uniform.—Stalker reports the histories of 7 patients guilty of unlawfully wearing military uniform or medals. All the patients showed a serious disorder of personality existing long before the war. This personality disorder was the prime cause of that form of abnormal behavior with which they reacted to the war situation. In most of the cases arrest and treatment had no remedial effect, similar behavior being repeated when opportunity came. These cases belong to Henderson's "predominantly inadequate" class of psychopathic states, described by him as almost more consistently abnormal or immoral, more malignantly involved in their individual tendency than the members of the more definitely aggressive group. It is a self centeredness which takes no thought of others and has for its aim the individual's self gratification and glorification irrespective of what consequences may follow. They are both narcissistic and exhibitionistic; altruism has little or no place. Such states of mind exhibit a detachment from reality, an altered consciousness, a form of split-mindedness where attention is difficult to gain and where phantasy and romance lead up to situations which are more or less obvious overcompensations for the failure to adapt to actual conditions. In each case there was some family history of psychosomatic, psychopathic or general psychiatric disorders but not enough to show that the patients' conditions were hereditary. A history of more physical ill health than the average was obtained in 6 of the cases, and the general physical development was poor in 3. One can see here a mechanism on adlerian lines of overcompensation for physical inferiority.

Lancet, London

1:697-710 (June 2) 1945

- Medical Problems of Southeast Asia Cominam. H. L. Marriott.—p. 679.
Knee Injuries in Soldiers. L. H. Wilkinson and H. A. Burt.—p. 684.
Field Method of Estimating Quinacrine Hydrochloride in Urine. E. J. King and Margaret Gilchrist.—p. 686.
Indirect Determination of Plasma Quinacrine Hydrochloride During Therapeutic Course. M. Brown and J. L. Rennie.—p. 686.
Indirect Determination of Plasma Quinacrine Hydrochloride in Subjects on a Suppressive Regimen: Method Suitable for a Field Laboratory. Army Malaria Research Unit, Oxford.—p. 687.
Periarteritis Nodosa: Report of Case. J. A. R. Bickford and A. I. D. Prentice.—p. 689.

Estimating Quinacrine Hydrochloride in Urine.—The method described by King and Gilchrist for use in the field is as follows: Quinacrine hydrochloride is extracted from alkaline urine into ether or paraffin, washed with sodium hydroxide, dissolved in normal hydrochloric acid, and the color measured against yellow glass disks in a Lovibond comparator. The procedure is an adaptation of previous methods. Results by this method have agreed well with photoelectric and fluorimetric determinations of quinacrine hydrochloride in a large number of urines from patients taking the drug.

Determination of Quinacrine Hydrochloride in Plasma.—Brown and Rennie say that specimens of plasma and urine obtained from patients who are receiving a therapeutic course of quinacrine hydrochloride have shown a relation between the concentration of quinacrine hydrochloride in the plasma and urinary quinacrine hydrochloride and ammonia concentrations which is almost as strict as the relation in subjects on a suppressive quinacrine hydrochloride regimen described by the Army Malaria Research Unit. The terms of the relation are different in the two groups of patients. The terms of the equation should be defined with each new regimen of drug administration before proceeding to the indirect determination of plasma quinacrine hydrochloride through observations on the urine. The authors describe studies on patients receiving therapeutic doses and on patients receiving suppressive treatment with quinacrine hydrochloride. They give the regression equations for both groups. Indirect determination of plasma quinacrine hydrochloride from observations on the urine is almost as accurate as the direct method and is much simpler and quicker. The army malaria research unit describes a method suitable for use in field laboratories for the indirect estimation of plasma quinacrine hydrochloride in subjects on doses of 0.1 Gm. daily from analyses of urine only. The errors of this method using duplicate determinations are of the same order as those of the mean of triplicate direct determinations.

Medical Journal of Australia, Sydney

1:505-528 (May 19) 1945

- Bacteriologic Findings in Series of Cases During the 1943 Moorabbin Epidemic of Typhoid, with Special Reference to the Cultural Examination of Bile. Hilda J. Gardner.—p. 505.
Bacteriologic Study of 50 Patients in the 1943 Moorabbin Typhoid Epidemic. J. C. Tolhurst, G. Buckle and A. Hyams.—p. 510.
Problem of Selection of Medical Students for Admission to Quota for Medical Course. E. S. Meyers.—p. 515.
Physiologic Consideration in Vascular Surgery: Ligation of Main Arteries to Limbs. L. Rogers.—p. 517.

Physiologic Considerations in Vascular Surgery.

According to Rogers, repair of the arteries under war or any other conditions is but rarely possible, and if an artery has to be tied care must be taken to ensure minimal interference with peripheral circulation. The artery should be secured in two places and divided between ligatures rather than tied in continuity. Division permits the ends to retract and may suppress a generalized vasospasm. Moreover, embolism from the site of the ligation is less likely to take place from a divided vessel. It is advisable to tie the artery just below a large branch rather than to leave a blind end into which there is a blood flow with each pulse beat; for example, the femoral artery should be tied just below the origin of the profunda rather than an inch or 2 lower in Hunter's canal. Furthermore, the distal ligation should also be placed near, that is, just above, a large branch, and the intervening part of the artery should be resected. For example, in the case of the brachial artery there is less interference with the circulation in the hand and fingers if the artery is tied just distal to the origin of the superior profunda and again just proximal to the origin of the inferior profunda, and

the intervening part resected, than if the vessel is tied and divided somewhere between the two branches. The accompanying main vein should also be ligated. Rapid transfusion of 800 to 1,200 cc. of blood, by increasing the blood pressure and forcing open capillaries, has proved valuable.

Annales d'Oto-Laryngologie, Paris

10:133-184 (Oct.-Nov.-Dec.) 1944

*Cortical Deafness. J. Lemoyne.—p. 133.

Etiology and Pathogenesis of Auricular Herpes Zoster with Generalization. R. Melchior.—p. 141.

Case of Cerebrospinal Rhinorrhea: Cure by Surgical Intervention. A. Aubin, R. Martin, Klein and Sureau.—p. 147.

Difficulties of Determining Primary Carcinoma of the Middle Ear from Its Initial Period. A. Hautant.—p. 151.

Cortical Deafness.—Lemoyne says that the auditory tract is only partially crossed and a unilateral temporal lesion does not impair hearing. It is a tract with two relays and comprises three neurons. The first neuron runs from Corti's ganglion to the bulbar nuclei; this is the cochlear nerve. The second neuron, or the bulbodiencephalic neuron, runs from the dorsal and ventral bulbar nuclei to the internal geniculate body. In this second segment the auditory tract is partly crossed. The crossed bundle comprises a superficial part (acoustic striae of the fourth ventricle), a deep part which at the level of the corpus trapezoidum constitutes the chief intercrossing of the auditory tract. The third neuron, the auditory radiations, runs from the internal geniculate body to the transverse temporal convolution, which comprises the center of the cortical projection of the auditory tract. This segment of the auditory tract assumes a special importance in the study of cortical deafness. The author presents the history of a patient presenting two associated types of disturbances: (1) a severe bilateral hypacusia with dissociation of the aerial bone perception; (2) a psychic deafness with total agnosia and disturbances of Wernicke's aphasia. He discusses the existence of cortical deafness and differentiation between cortical deafness and bilateral labyrinthine deafness. The requirement of lesions involving the two transverse temporal convolutions explains the rarity of cortical deafness. A right temporal lesion has no effect; a left temporal lesion either has no effect or causes Wernicke's aphasia; in bilateral temporal lesions either aphasia is evident or cortical deafness can pass unobserved and requires systematic investigations with the audiometer, or cortical deafness dominates but gives the impression of a labyrinthine deafness.

Presse Médicale, Paris

53:57-68 (Feb. 3) 1945

*Physiologic Principles of Treatment with Acetylcholine: Its Indication in Essential Hypertension and Acute Collapse, Its Dangers in Hypertension. D. Danielopolu and D. Crivetz.—p. 57.

Remarks on Diencephalic Localization of Epilepsy: Clinical Case. J. A. Chavany and M. Feld.—p. 58.

Group Effect in Physiology: L. Binet and F. Bourlière.—p. 59.

Benzyl-Imidazole in Treatment of Raynaud's Disease. A. Ravina.—p. 64.

Late Acute Intestinal Occlusion in Laparotomized Patients. R. Desjacques.—p. 64.

Acetylcholine: In Hypotension and Hypertension.—According to Danielopolu and Crivetz, acetylcholine provokes in the terminal organ a parasympathicomimetic cellular response which elicits an immediate compensatory sympathicomimetic cellular reaction, which in turn results in the liberation of sympathin. The response and the reaction form a whole, to which the authors apply the term amphomimetism. The parasympathicomimetic response is more intense than the sympathicomimetic reaction. As a result, acetylcholine has an amphomimetic action with parasympathetic predominance. It inhibits the heart and vessels. After atropine, which impedes the parasympathicomimetic action, acetylcholine becomes exclusively sympathicomimetic: from a vasodilator it becomes a vasoconstrictor. The authors have demonstrated that atropine, which in the terminal organ impedes the parasympathicomimetic action of acetylcholine, not only does not impede its epinephrine secreting action in the adrenal medulla but favors it by inactivating the cholinesterase. Investigations on the physiologic role of acetylcholine have revealed that many important organs are stimulated by it; besides, it is liberated at the level of all the synapses constituting the natural excitant of neurons and assur-

ing the circulation of the nervous influx. Regarding the therapeutic implications of their investigations, they say that what is called essential hypotension or hypoamphotony is only a vascular manifestation of the general reduction of the vegetative tonus, both sympathetic and parasympathetic. This state is accompanied by a hypofunctioning of all the organs. In these conditions the authors make daily subcutaneous injections of from 0.2 to 0.5 Gm. of acetylcholine. This substance augments the terms of all the parasympathetically controlled organs and increases the secretion of epinephrine. Acetylcholine treatment is the preeminent tonic treatment. Without waiting for a permanent increase in blood pressure, it activates the functioning of all organs and of the nervous system. Strychnine in increasing doses is added to acetylcholine because by its action on the chronaxia it augments the tonus of certain centers. In acute collapse the authors know no more effective treatment than acetylcholine after an intravenous injection of 1.5 mg. of atropine sulfate, because the acetylcholine stimulates a prolonged secretion of epinephrine, whereas the administration of epinephrine has only a fleeting effect. Strychnine is added to acetylcholine in these cases. Because acetylcholine stimulates the secretion of epinephrine even when injected subcutaneously, it is contraindicated in hypertension. It can sometimes decrease the blood pressure, but the phases of sudden hypotension alternating with hypertension constitute a danger. Acetylcholine is contraindicated when arteritis obliterans supervenes in a patient with hypertension.

Boll. d. Soc. Ital. d. Med. e Ig. Trop., Asmara

4:535-750 (Sez. Erit.) 1944. Partial Index

*Acute Pelvic Varicocele and Sclerocystic Degeneration of Ovaries: Role in Pathogenesis of Hemoperitoneum from Spontaneous Rupture of Lutein Cysts. F. de Francesco and V. Di Meglio.—p. 535.

Lavage of Lateral Cerebral Ventricles with 2 p-Aminosulfamide-Pyridine in Therapy of Intracranial Suppuration in Open Fractures. M. Manfredonia.—p. 727.

Pathogenesis of Acute Hemoperitoneum.—De Francesco and Di Meglio performed operations on 22 women for symptoms of acute hemoperitoneum. Spontaneous rupture of a hemorrhagic lutein cyst was the cause of bleeding. Acute pelvic varicocele, cystic degeneration and sclerosis of the ovaries were encountered in all. The authors believe that pelvic varicocele with consequent cystic sclerosis of the ovaries is caused by nutritional and vascular disorders of the lumbo-ovarian ligament. These factors are the result of repeated pregnancies, local chronic inflammation and constitutional neurohormonal deficiency. The last factor is the one most frequently encountered. It is also the cause of the transformation of the corpus luteum into a lutein cyst with fragile walls which suddenly rupture. The intervention consists in partial resection of the ovary or ignipuncture of the ovarian cysts, subtotal resection of varicose veins in the segment of the ligament most accessible during the operation and sympathectomy of the fibers which supply the ovarian ligament.

Nordisk Medicin, Stockholm

24:2161-2202 (Dec. 8) 1944

Hospitalstidende

Complications and Dangers in Liver Biopsy. K. Raby.—p. 2161.

Evaluation of Liver Function Tests. (Takata-Ara Reaction, Quinine Resistant Lipases in Serum, Serum Phosphatase and Serum Citric Acid). M. Iversen.—p. 2164.

Cases of Liver Biopsy in Chronic Alcoholism: (Preliminary Report). K. Raby.—p. 2170.

Histopathology of Liver in Infectious Mononucleosis Complicated with Jaundice Examined by Aspiration Biopsy. J. Bank and O. Wanscher.—p. 2175.

Result of Gonadotropin Treatment of 70 Men with Lowered Fertility. R. Hammen and S. Felding.—p. 2178.

Hygiea

Electrocardiogram Changes Due to Action of Vagus. J. Lind.—p. 2181.

*Observations in Poliomyelitis Epidemic. K. G. Dhuner.—p. 2187.

Poliomyelitis Epidemic.—Dhuner reports that of 307 cases of poliomyelitis from the 1943 epidemic in southern Sweden 27 were fatal. There were 31 cases of polioencephalitis. In 22 women poliomyelitis was complicated by pregnancy; in the known 10 living children born neither paralysis nor muscular atrophy was demonstrable.

Book Notices

A Textbook of Ophthalmology. By Sanford R. Gifford, M.A., M.D., F.A.C.S. Third edition. Cloth. Price, \$4. Pp. 457, with 232 illustrations. Philadelphia & London: W. B. Saunders Company, 1945.

This edition, which was completed by Dr. Gifford before his death, presents a thoroughness and care of presentation similar to that characterizing the previous editions. There has been little if any change in the original text, but the author has included some of the newer advances in diagnosis and therapy. In the discussion of ptosis, which is exceptionally well covered for a small textbook, he has included the Dickey operation, which uses a fascia lata sling connecting the superior rectus muscle to the upper tarsal plate. Dr. Gifford was partial to this operation, although it has not gained universal popularity. Included is a paragraph on the subject of contact glasses, in which he is emphatic in the fact that there is considerable difficulty encountered in the wearing of them. An addition to the discussion of the treatment of glaucoma includes the use of cyclodiathermy of the ciliary body for central retinal vein thrombosis. Epidemic keratoconjunctivitis has also been included. In the brief section on cataract surgery the author is partial to a corneoscleral suture.

It is unfortunate that the use of penicillin has not been included. No mention is made of leptothrix as a cause of epiphora in the chapter on diseases of the lacrimal apparatus. There are a number of additional illustrations, some in color. Throughout the book the discussions are practical and concise, the illustrations carefully designed to supplement the text, the contents succinct and well organized. The book is deserving of its popularity and is to be recommended to the medical student and general practitioner as well as to the ophthalmologist.

Arterial Hypertension: Its Diagnosis and Treatment. By Irvine H. Page, M.D., and Arthur Curtis Corcoran, M.D. Cloth. Price, \$3.75. Pp. 352, with 12 illustrations. Chicago: Year Book Publishers, Inc., 1945.

To those who know of the work done by the authors on the treatment of hypertension with kidney extracts this book will be a surprise. Only two of its pages are devoted to the treatment of hypertension by kidney extract; and this brief section concludes with the statement that "it would be premature to attempt to form any considered judgment about these extracts."

Section I considers normal blood pressure, the classification of hypertension, tests for measuring vascular responsiveness, and early stages of hypertension. In section II, essential and malignant hypertension, the findings on physical examination, and the psychotherapy of hypertension are discussed. Section III is devoted to "the cardiovascular evolution of the disease." The basic factor in hypertension is increased vascular resistance, which is concentrated in the arterioles. The exception to this rule is found in the heart itself, where the injury is to the coronary arteries. A brief discussion of electrocardiographic changes is included in this section.

Section IV discusses hypertensive or coronary heart disease, including angina, coronary occlusion and congestive heart failure, the effects of arterial hypertension on the brain and on the kidneys, and hypertension and pregnancy. An optimistic view is taken of pregnancy in the woman with moderately elevated blood pressure. "With mild hypertension, pregnancy need not be discouraged; with severe hypertension it is contraindicated." The fetal risk, however, is much greater than is the maternal.

Section V takes up the treatment of essential hypertension. After an evaluation of the therapeutic effectiveness of thiocyanate, kidney extract and vitamin A, the authors discuss the surgical treatment of hypertension by nephrectomy in the occasional case in which unilateral kidney disease is found. Finally the various operations for removing part or all of the sympathetic nerves are considered. The conclusion is reached that "if the circumstances are suitable . . . an adequate sympathectomy can be followed by significant therapeutic results. But the suitability of the circumstances is not always easy to determine."

The clinician may question some of the authors' conclusions, which are rather dogmatic. For example, in the discussion of coronary thrombosis it is said that the blood pressure may fall greatly at the onset but "rises in forty-eight hours to its pre-infarction level and a secondary moderate decrease appears between the twelfth and the twentieth day." Most clinicians have found that the pressure may rise, even considerably, with the onset of the pain, and that it usually falls within twelve to forty-eight hours after the onset of the attack and stays down for weeks or months.

Doubtless a typographic error was responsible for the excessive dose of chloral hydrate prescribed (p. 85) in the "hypertensive mixture": 320 Gm. in a 240 cc. mixture, to be taken "4 cc. once, twice or three times a day."

In view of the widespread interest in the rice diet advocated by Dr. Walter Kempner of the Duke University School of Medicine, one wonders why mention of it was omitted, while the total sympathectomy of Grimson, who is from the same school, was discussed in detail. Kempner has reported a far larger series of cases than has Grimson.

These criticisms are not intended to detract from the value of the book. Although the mystery of arterial hypertension is still far from being solved, this is an important contribution and will help to clarify our thinking on the subject.

Modern Psychiatry. By William S. Sadler, M.D., F.A.P.A., Consulting Psychiatrist to Columbus Hospital, Chicago. Cloth. Price, \$10. Pp. 896. St. Louis: C. V. Mosby Company, 1945.

The author begins his book on psychiatry with a long section on personality problems. This is followed by chapters on the psychoneuroses, the psychoses and finally on therapeutics. Thus the approach in this book is distinctly modern, for the descriptive accounts of the various psychoses as seen in the clinic or hospital occupies only a small part of the volume. This is a distinctly individual work, reflecting the author's interest in what he terms "personology." Dr. Sadler places before the general practitioner of medicine, as well as before specialists and psychiatrists, the problems of personality and maladjustment as seen in many "normal" persons. The psychoneuroses and the psychoses are given secondary consideration. In putting the material in this order he emphasizes the larger aspects of psychiatry and minimizes the field of the custodial care of psychotic persons. The book offers a sound approach to psychiatry in general but the text is weakened by redundant material, generalizations, medical slang and repetitions. The volume would have been more useful had a competent editor removed a considerable portion of the text. It is too long for the general practitioner and too diffuse for the specialist but relatively sound for those who have the time and the inclination to read it.

Ultracentrifugal Studies on Serum and Serum Fractions. By Kai O. Pedersen. Paper. Price, 10 Swedish crowns. Pp. 178, with 34 illustrations. Uppsala: Almqvist & Wiksells Boktryckeri AB, 1945.

The appearance of this volume summarizing work carried out from 1939 to 1944 at the Institute of Physical Chemistry at Uppsala is timely, since it makes available both the experimental work and the approach to problems of an important group of scientists with whom contact has been almost non-existent during the war. The work throughout emphasizes the necessity for the use both of ultracentrifugal and of electrophoretic analysis as a guide to the study of mixtures of proteins, a point of view which is also generally accepted in this country. Dr. Pedersen reports several fundamental contributions, among which are the establishment of the profound influence of the density of the solution centrifuged on the protein pattern with the resultant demonstration and separation of the X-protein of human serum, a high molecular weight dissociable complex of albumin and globulin containing large amounts of lipid and perhaps carbohydrate. Also of great interest is the discovery that serum of the fetus and the newborn calf contains a protein with a molecular weight of 50,000, called fetuin, not present in the serum of adult animals. These studies will no doubt stimulate intensive investigation into the role of the X-protein and of the fetuins in the organism and provide the point of departure for further intriguing research on the serum proteins.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SULFONAMIDES FOR EAR INFECTIONS

To the Editor:—How effective therapeutically are external ear medicaments containing one or more of the sulfonamides, such as Otomide and Otomason? Are there clinical or laboratory data substantiating the value and safety of these products when used in the external ear?

M.D., Missouri.

ANSWER.—Infection of the external canal may be due to bacteria or fungi. The effect of local sulfonamide therapy depends on the organism. Infections by gram positive bacteria are likely to be inhibited, while those due to the coliform group of bacilli are resistant to sulfonamides and penicillin. Powdered sulfanilamide has been shown to have a fungistatic effect on *Aspergillus*, *Penicillium* and *Mucor* infections in vitro but not on *Monilia*, the other sulfonamides having no effect. Clinical results with powdered sulfanilamide and sulfathiazole were reported to be good. Preparations of sulfonamides in a base such as glycerin are less suitable for external ear infections than the dry powder. The local use of sulfonamides offers nothing in acute middle ear suppuration. In chronic suppuration the effectiveness depends on the type of suppuration. Active bone involvement or cholesteatoma is improved only to the extent that secondary invaders are inhibited. In line with the established principle of careful cleaning and drying as the local treatment of choice for simple chronic suppuration, the dry sulfonamide powder is generally preferred to wet preparations or solutions. A local sensitivity to sulfonamides when used in the external and middle ear is relatively common.

REPEATED RABIES PROPHYLAXIS

To the Editor:—A veterinarian has found it necessary to take five series of prophylactic rabies treatments in the last few years. He has developed muscular weakness of both lower extremities, hyperesthesia to a level corresponding to the twelfth dorsal vertebra and retention of urine following the last series. As it will be necessary for him to continue to come in contact with rabid animals, I should like to know if there is any safe prophylactic to be recommended.

I. B. Oldham, M.D., Muskogee, Okla.

ANSWER.—There is no other specific preventive for rabies than rabies vaccine. It seems obvious that the veterinarian should not take any more vaccinating treatments but put his reliance on painstaking general measures to prevent rabies infection. Such infection in all probability takes place only through bites by rabid animals, but the possibility of contamination by rabid material of a wound or break in the skin or oral mucous membrane cannot be denied. Undoubtedly the five series of preventive treatments taken have left behind some degree of specific resistance.

ESTROGENIC TREATMENT OF THE MENOPAUSE

To the Editor:—A white woman aged 45 complains of vasomotor flushes, fatigue and digestive distress—especially distention. She has been examined by several physicians in the past two or three years, but no organic lesions have been found. Each has independently prescribed estrogenic therapy with prompt improvement of the nervous complaints, but she promptly develops a copious seromucinous vaginal secretion with unpleasant odor, swelling of the labia and friability of the vaginal wall, so that wiping with cotton will produce bleeding. This has resulted after diethylstilbestrol orally (0.5 to 1 mg. probably) and hypodermically, theelin (2,000 and 10,000 units), estrogenic substance (10,000 units) and estradiol benzoate (10,000 units). I have not found any information on such a complication, but on the last occasion, after estradiol benzoate (10,000 units) I gave 5 units of progesterin the next day, with subsidence of discharge and swelling in twelve hours.

C. W. Atherton, M.D., Peoria, Ill.

ANSWER.—That the nervousness and nervous indigestion, the hot flushes, the fatigue and other associated symptoms should and did subside under estrogenic treatment is the expected result. That the woman should develop an increased secretion from the glands of the uterus, cervix and vagina is the normal consequence of estrogenic stimulation of these structures. The unpleasant odor of these secretions may be due to the nature of the flora of the vagina. If there is any blood present, even in small amounts, the decomposition of this blood always causes

a disagreeable odor. It is not quite clear whether the labial condition which is described as a swelling is actually a swelling or is a return to the normal fullness and turgescence of the labia from an atrophic condition under the influence of estrogens. The so-called friability of the vaginal wall would be an exceedingly rare and abnormal condition in a woman. A possible explanation of this tendency of the vaginal wall to bleed on wiping with a pledget of cotton might be the presence of flora in the vagina which irritate the turgescence vaginal mucous membrane.

The question states that, "on the last occasion, after estradiol benzoate (10,000 units) I gave 5 units of progesterin the next day, with subsidence of discharge and swelling in twelve hours." If only one injection of 10,000 international units of estradiol benzoate was given, and one must infer from the letter that the same reaction occurred from a single injection, then it seems reasonable to surmise that the genital structures described are hypersensitive to estrogens; one would hesitate to use the word allergic in this instance. Patients are usually not allergic to steroids, but they are frequently allergic to the various oils which are used as solvents for the estrogens (peanut oil, corn oil and oil of sesame) and the radicals with which the estrogens are combined. Diethylstilbestrol is not a sterol or natural estrogen. The inquirer indicates that one injection of 5 units of progesterin the next day caused a subsidence of the discharge and the swelling in twelve hours. Progesterin acts on the genital mucous membranes only after these structures have been stimulated to growth by estrogens, and then the action of progesterin is to stimulate secretions further and not to check them. Obviously there are factors operative in the case described which are not easily explained and which require further study.

OVIDUCAL PATENCY AND FERTILITY

To the Editor:—Will you kindly explain the significance of the following clinical observations: A nulliparous white woman aged 38 has had several air insufflations performed, and in each instance closed oviducts were indicated. Similar results were obtained after ten days of antispasmodic therapy with a proprietary antispasmodic. The menstrual history is normal: menses occur every twenty-five to twenty-eight days for three or four days. Bimanual examination did not reveal any abnormalities. A uterosalpingogram with iodized oil disclosed that the uterine cavity filled completely and was fairly large; the uterus was dextroverted; the right oviduct was visualized, and was shown to be not as long as the left oviduct; the oil passed through the fimbriated end. The sphincter of the left oviduct was normal in outline; the tube was very long, with the fimbriated end pointing downward; the oil passed through the fimbriated end. A twenty-four hour examination showed a small amount of free oil in the peritoneal cavity. From the roentgen examination it was concluded that the oviducts are patent at both the inner and the outer ends. However, a subsequent air insufflation again indicated closed oviducts, except for an occasional trickle of air through the tubes. The day following this latest insufflation the patient experienced moderate pain in the left shoulder; this subsided spontaneously after twenty-four hours. Her past history is normal except for severe influenza during the epidemic of 1917. I would appreciate an explanation for the failure of air to pass through the oviducts when the uterosalpingogram showed the oviducts to be patent. What therapy could be instituted to correct this condition so that she may conceive?

M.D., New York.

ANSWER.—Not infrequently when air fails to show patency of the oviducts hysterosalpingography demonstrates that they are open; likewise the reverse is occasionally true, but there is no apparent reason for either of these phenomena. Perhaps, in the case cited, if carbon dioxide is used along with a kymograph, tubal patency will be demonstrated. Even if air and gas fail to pass through the tubes, x-ray examination has demonstrated a spill from the fimbriated ends with free oil in the peritoneal cavity. Hence a careful study should be made of both the patient and her husband for other etiologic factors. The patient is 38 years old, so that she may have quite a few anovulatory menstrual periods; a definite effort, therefore, should be made to determine the date of ovulation by temperature graphs and vaginal smears and instruction given concerning the most favorable dates for coitus. The oviducts require no treatment, but if carbon dioxide will pass, repeated insufflations may help.

CONDENSED MILK—EVAPORATED MILK

To the Editor:—My attention has been called to a reply to a query on infant feeding appearing in the June 30, 1945 issue of The Journal. The question was asked about a formula "of equal parts of condensed milk and water." Condensed milk which contains a large quantity of sugar would not be suitable for infant feeding. It is possible that the reply was written with evaporated milk in mind, which would be suitable for such use. Condensed milk and evaporated milk cannot be used interchangeably, and the distinction between them should be kept in mind.

Katherine Bain, M.D., Washington, D. C.

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OUR NATIONAL MEDICAL RESOURCES

THE URGENCY OF AN ANALYSIS

LIEUTENANT COLONEL MICHAEL E. DEBAKEY
MEDICAL CORPS, ARMY OF THE UNITED STATES

In a recent statement Henry L. Stimson, then Secretary of War, forcefully reminded the nation that we have come "... rather suddenly in sight of the ultimate limitations of our manpower and resources." Although the end of active fighting has brought, or will shortly bring, the solution to many of the problems which arose during the war as the result of limited or inadequate resources, both human and material, it will not, as many hopefully believe, bring a solution to all of them. This applies with special emphasis to the field of medicine.

The inadequacy of the national medical resources which became so acutely evident during the war is by no means a temporary phenomenon. It is a chronic problem. It was merely aggravated by the circumstances of war. The shortage still exists, even though the war is over, and many factors now operative threaten to make it even more acute. Economic and social forces are pressing for prompt and effective solution of problems which still are only partially defined. Some formal reorganization or redistribution of personnel and facilities is inevitable. In order to effect intelligent direction of any reorganization of medical services, however, a thorough analysis of the national medical resources in relation to the national medical needs is as urgent as it is essential.

A consideration of certain aspects of the military experience with this problem may contribute to a better understanding of its postwar significance. As in many other fields, it was necessary during the war to meet both military and civilian medical needs with such resources as currently existed and with such increments as could be provided without disruption of other military needs. There were, however, certain obvious differences between the supply of physicians and the supply of such items as automobiles and washing machines. It was inconvenient to do without the latter; it was impossible to do without the former and impossible also greatly to increase the supply at short notice. As a matter of fact the unfortunate policy of Selective Service in the last years of the war in refusing to defer prospective medical students will result for some years to come in a decrease in the usual annual increment of physicians. Had the war continued longer, this policy might well have created serious shortages in the numbers required to meet the medical needs of the nation.

The record of the U. S. Army Medical Department during the war has been justly acclaimed. The soldiers of this country were better cared for than any other soldiers in the world have ever been cared for. The wounded were saved from death and were returned to military effectiveness in numbers never before considered possible. Men were saved from disability and deformity who in previous wars would either have lost their lives or would have lived out their days in invalidism and worse.

This record was not achieved by chance. Too much credit for its accomplishment cannot be given to the wisdom and foresight and imagination of the Surgeon General of the Army. At the very beginning of the war he clearly comprehended (1) that the medical resources of the Army would necessarily be limited by the available supply of physicians and by the necessity of dividing that supply fairly between military and civilian needs and (2) that, without careful allocation of the medical personnel available for military needs, results could not be expected commensurate even with the restricted supply of physicians.

The problem which thus presented itself was solved in two ways: 1. Consultants Divisions were created representing the major divisions of medicine (medicine, surgery and neuropsychiatry) and were charged with the evaluation of the professional qualifications, that is, the medical competence, of the available personnel. 2. To each division was given the additional responsibility of so recommending the assignment of available specialized personnel that each man would be used to the best advantage in his particular field.

The Consultants Divisions of the Surgeon General's Office developed a single basic policy, namely the assignment of specialized personnel at such places as specialized needs would be likely to develop, and, vice versa, the concentration of patients with specialized clinical needs into centers in which they could be treated by specialized personnel. The placing of trained surgical teams in forward areas in the zone of combat is an illustration of the first phase of this policy. The creation of specialized centers for tropical disease, neuropsychiatric disturbances, neurologic surgery, chest surgery, plastic surgery, amputations and the like is an illustration of the second phase.

This, however, is the brighter side of the picture. The darker side is the wastage which inevitably occurred in spite of the endeavor to use the limited supply of medical personnel to the best advantage. The very constitution of our military establishment required, and still requires, the inefficient and extravagant provision of separate medical installations for the Army, the Navy, the Air Force and the Veterans Administration. Often these separate facilities were, and still are, literally side by side. Each installation was, and still

The opinions and views set forth in this article are those of the writer alone.

is, provided with a more liberal allowance of beds than its census of patients has ever required with the exception of certain hospitals, particularly in the later months of the war. Each installation was, and still is, usually staffed with adequate numbers of medical personnel, though many hospitals were, and are now, inadequately staffed from the standpoint of medical efficiency and specialized competence.

The end of active fighting has brought this whole problem sharply into focus. The war has multiplied the medical responsibilities of the nation. It has produced many thousands of sick and wounded men who under normal circumstances would have been subject only to illnesses and injuries likely to occur in perhaps the healthiest of all age groups. Some of these must be cared for in hospitals for many years to come. To the care of these casualties must be added the care of illnesses which normally occur in any large civilian population. The population of the United States, it should be added, has increased by some five million persons during the war. It should also be added that the standard of medical care expected by the public has risen in the course of the war, and that a high standard will be taken for granted for men released from the armed forces who received such care during their period of service.

The medical resources of the country are simply not adequate to meet the demands for medical care as they at present exist. The supply of physicians is not great enough numerically to provide for a high standard of medical care for both civilian and government requirements and at the same time to compensate for the waste in medical personnel and facilities which the present system permits.

From the standpoint of specialized medical competence the deficit is even more glaring than it is from the standpoint of numbers, especially in view of the highly specialized nature of many combat injuries and diseases still to be cared for. There are in the United States today some 160,000 practicing physicians, of whom only slightly more than 20,000 are certified by the various specialty boards as qualified in their chosen fields. The number of physicians who are eligible for certification and who have not taken the trouble to secure it is probably so small that those certified by the various boards may be assumed to represent the totality of competent specialists in the United States today.

During the war the weight of military authority, exercised through the Consultants Divisions, saw to it that the specialists in the Army and within the limits of the authority of the Surgeon General were placed where their competence could be most effectively utilized. When the emergency is at an end, however, almost all of these specialists will return to private civilian practice, where, in spite of the heedlessness with which the general public selects its medical advisers, competition will largely determine their distribution. The government, on the other hand, will find itself confronted with an extremely serious situation. It will be required to provide medical care for large numbers of men with diseases and injuries requiring specialized management, while at the same time it will have few, if any, specialists to care for them.

The Veterans Administration for many years to come will urgently need such specialized personnel. It is not necessary to go into the details of how good or how bad the administration's care of its sick and wounded has been in the past. The ability of its personnel can be promptly determined by an investigation as to how

many specialists certified by the various specialty boards it has on its staff at this time and what plans, if any, it has made to secure qualified personnel in the future. The categories of required medical care and an optimum provision for them may be outlined as follows:

1. Patients who require prolonged supervisory therapy, including convalescent and custodial care for chronic conditions. They would be treated in permanent veterans' facilities and would be subdivided into two groups: A, those requiring no specialized forms of treatment, who could be cared for by nonspecialized personnel, and B, those requiring highly specialized treatment for such conditions as tuberculosis, arthritis and neuropsychiatric states. The latter groups could be concentrated in establishments designated for their special needs, preferably situated near civilian medical teaching centers, where civilian specialists could share in their treatment.

2. Patients who require shorter periods of observation and treatment for acute conditions. They could be treated in civilian hospitals throughout the country designated for the purpose, by staff physicians who would be selected on the basis of certification by the various specialty boards.

Fees for hospitalization and for medical care would be paid by the Veterans Administration at generally accepted rates. Incidentally, outpatient services established on this basis would have many advantages.

The plan outlined would do away with the present duplication and waste of government medical installations and is the more justified since transportation is no longer part of the medical problem. Trains, automobiles and airplanes make central installations as practical as they are desirable.

This plan would also utilize to the fullest the available supply of specialists. That supply, it should be emphasized again, cannot be greatly increased within the immediate future. The number of medical graduates will remain limited because the number of medical schools is limited and for reasons of both finance and personnel cannot immediately be increased. The number of medical specialists is even less likely to be increased to any great degree within the immediate future, partly because the facilities for specialized training are even more sharply limited than are the facilities for undergraduate medical education and partly because of the military policies which curtailed the training of specialists during the war. Furthermore, though space does not permit detailed discussion of this aspect of the problem, it should be pointed out that on both government and civilian physicians there rests a continuing obligation to carry on scientific research, without which advances in medicine would come to an abrupt halt.

At the present time Congress is interesting itself in the provision of adequate medical care for the whole nation, and with that objective no one can reasonably quarrel. But it seems equally reasonable to suggest that before embarking on new and untested schemes, which would require the creation of large numbers of new positions and the expenditure of large amounts of money, the government should take the practical step of doing away with the extravagance and inefficiency in the medical services under its immediate control. The waste and inefficient application of our limited medical resources should no more be tolerated than should similar extravagance in the management of such physical resources as coal and oil and iron. It

also seems reasonable to demand, now that the military emergency is over, that the government make some provision either for attracting into federal service an adequate number of medical specialists or for securing the services of civilian specialists, by the plan proposed or by some other means, to care for the thousands of casualties who will require specialized management and who cannot be adequately cared for without it.

These steps, however, do not constitute the chief medical problem which confronts this country. They represent merely an approach to it. The basic problem is, paradoxically, the realization that there is a medical problem. So far that has not been done, or at least has not been done openly. For this lack of public recognition there are perhaps two reasons. The first is the almost universal failure of federal authorities to accept a concept of medical service which includes specialized as well as generalized care. The second is the fear on the part of many physicians that a well organized federal medical service would militate against the best interests of the profession. That fear is baseless. Indeed, the profession will be derelict both in its duty to the country and in the promotion of its own interests if it does not foster such a service.

Once the existence of the problem has been recognized, the first step toward its solution would be an analysis of the medical resources of the country in relation to its medical needs, civilian as well as federal, research and educational as well as purely clinical. The analysis of the federal needs should be on the basis of the needs of all its services, Army including Air Forces, Navy, Veterans and Public Health, integrated into an overall pattern and stemming from a single general agency. Not only is the present system uneconomical financially and wasteful of personnel and facilities; it actually discourages the attainment of higher standards of medical care.

An analysis such as is proposed should be made by a board appointed on the highest level. Its function should be limited to fact finding and recommendation. Its membership should be composed of both civilian and government medical and administrative personnel. The civilian component should represent educational and research as well as clinical interests, and there should be due representation from the major medical specialties. The government component should include the various branches of the armed services, the Veterans Administration and the Public Health Service. The chairman of the proposed board would necessarily have administrative ability, and his past experience should be such as to make him fully aware of all the phases of the problem without, however, personal entanglement in any of them. He should be a man possessed of knowledge, wisdom, imagination, perspicacity and, above all, courage.

The appointment of this board, and even its report and recommendations, will not, of course, solve the national medical problem. It will, however, make clear what the problem is, both absolutely and in relation to the medical resources of the country. At the present time that knowledge does not exist, and, until the exact nature of the problem is clear, attempts to solve it are little more than gestures in the dark. Indeed, attempts to solve it can be actually harmful, in that they are likely to result in further dissipation and misuse of the numerically limited medical resources and the still more limited specialized medical resources which now exist to meet both the federal needs and the civilian needs of the whole country.

X-RAY BURNS RESULTING FROM FLUOROSCOPY OF GASTRO- INTESTINAL TRACT

REPORT OF FOUR CASES INCURRED IN ONE DAY

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The widespread use of small shock proof and "ray-proof" x-ray units in connection with military and industrial work is well known. Less well known is the fact that these units are just as capable of producing serious burns in both patients and operator as were the old fashioned "exposed" units of a generation ago. Indeed, many of them are more apt to be dangerous for the simple reason that, being portable and shock proof, they can be brought much closer to the patient than could the older, heavier or non-shock proof units. The lack of adequate distance between the x-ray tube and the patient's skin is one of the chief sources of danger, few persons recollecting that the intensity of output varies inversely as the square of the distance.

The accompanying table will illustrate the importance of sufficient distance between tube and patient in x-ray work of any type: The factors are the average fluoroscopic ones of 75 kilovolts and 5 milliamperes, with filter of 0.5 mm. of aluminum.

Most small portable x-ray units are customarily operated at from 60 to 80 kilovolts and at from 3 to 5

Distance, Output and Erythema Time

Distance (in Cm.) of Patient's Skin from Focal Spot of Tube	Output (In Roentgens per Minute) Measured in Air	Erythema Time (in Minutes) if Exposure is at One Sitting or at Closely Spaced Sitzings
10 cm.	250 roentgens	1 minute
25 cm.	40 roentgens	6 minutes
50 cm.	10 roentgens	14 minutes

milliamperes. Variation of these factors produces the following influence on x-ray output:

Increase of 10 kilovolts in voltage increases the output approximately double.

Increase of milliamperage increases the output in approximately direct ratio (i. e. an increase from 3 milliamperes to 6 milliamperage doubles the x-ray output).

If three factors—adequate distance, reasonable voltage and low milliamperage—are borne in mind the average operator is not likely to cause serious damage, except in connection with search for foreign bodies and the reduction of fractures. Experienced radiologists employ the fluoroscope sparingly and then only with very small beams (say 3 inches square) in aiding the search for foreign bodies. Since the vast majority of metallic foreign bodies are innocuous, most surgeons refrain from adding insult to injury by exploring for them; therefore the problem of burns from fluoroscopic aid in foreign body removal is properly small. Unfortunately the same cannot be said for the reduction of fractures. Despite the pleading of experienced orthopedists, many physicians are prone to use the fluoroscope during (instead of briefly after) the attempted reduction of fractures. Intent on examination, the seconds become minutes before the well intentioned operator has realized it, and the safe or tolerance period of fluoroscopic observation has been exceeded. The skin of the patient

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and, too often, that of the operating surgeon, has been irreparably damaged. Sometimes the subcutaneous tissues, muscles and even bones have been permanently injured.

Less well known than the foregoing types of damage is skin damage incidental to gastrointestinal fluoroscopy. Isolated cases have been noted by many observers, but a group of 4 cases produced by a single examiner in one day must be quite rare. As an example of an isolated incident the following case may be reported:

A woman was referred for consultation on account of alleged diverticulitis of the duodenum. She had a rectangular area of skin damage about 10 by 15 cm. on the skin of her back over the right upper lumbar area. This was reddish, somewhat indurated and intermittently itching and painful. She stated that her former physician had told her she had three diverticula arising from the distal duodenum; he became so interested in her case that he demonstrated them to some colleagues, to his office nurse and to himself repeatedly over a period of a few days. As a result she incurred a serious though not permanently disabling x-ray burn.

The four cases occurring in one day developed under the following circumstances:

In May 1944 a group of young male patients were in a small military hospital in the Southwest Pacific area. The officer in charge of the medical patients decided that 8 of them needed x-ray examination of the gastrointestinal tract. He employed a small portable x-ray unit and a detachable head fluoroscope. No metal guard or cone was apparently placed on the x-ray

opened and broke spontaneously after three days. A raw painful skin surface about 5 cm. in diameter was left. One additional patient had an erythema and a few small blisters but did not develop any exfoliation or noteworthy pain.

The 4 patients were kept in the hospital for a period of approximately two months, receiving daily dressings of a white

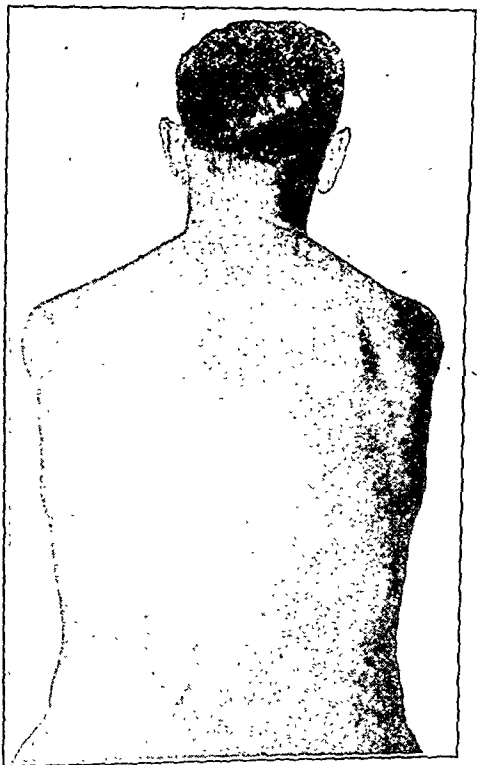


Fig. 1.—Full view of atrophic lesion of skin and subcutaneous tissues following a single gastrointestinal examination. The physician used a small shock proof x-ray unit with head fluoroscope. This photograph and the one from which figure 2 was reproduced were made eight months after the injury (which took about four months to heal). Three other patients were similarly burned with the same unit on that day.

tube housing. Four of the patients were examined for a fairly long period, up to perhaps ten minutes each. An average of three films was made in each case.

One week later these 4 patients developed patches of "sun-burn" on their backs about the midlumbar area. Blisters devel-

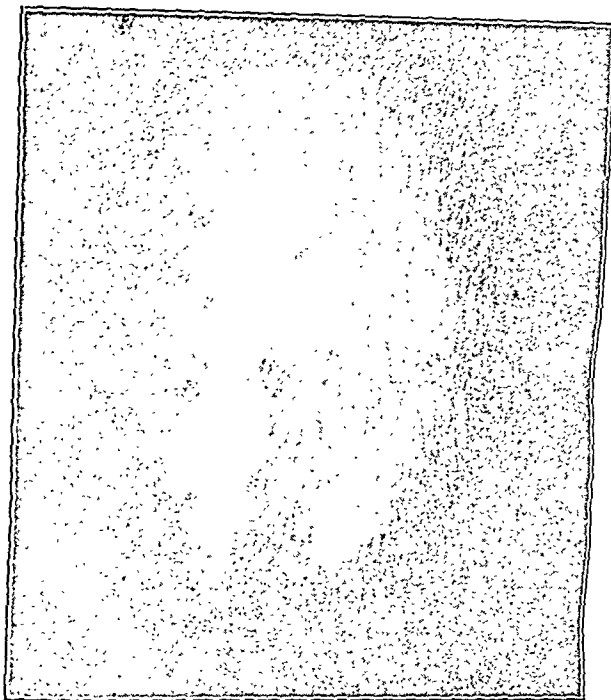


Fig. 2.—Close-up view of lesion.

oped and mild sedation for pain. The lesions were quite painful at times (the pain being described as drawing and sharp). After two months 3 of the patients were discharged in care of the medical officer near their former activity, and the fourth was kept for an additional month. One of the 3 cases was subsequently skin grafted. The case illustrated herewith required further dressings for two months, at the end of which time the lesion healed up. The patient lost about 10 pounds (4.5 Kg.) in weight and developed (he claims) intermittent nocturnal backache in the lumbar area after the incident.

Examination at the time of this report, eight months after the original fluoroscopic injury, reveals a pale, whitish pink, ovoid area of atrophic skin in the left posterior lumbar area measuring 6 by 5 cm. It shows some fine central telangiectases and a periphery of dark brown pigmentation, is adherent to the underlying tissues and is partly devoid of hair. Its center is 4.5 cm. to the left of the midline and 2 cm. above the crest of the ilium.

Brief fluoroscopic examination of the upper gastrointestinal tract (performed with the patient's ventral surface nearest the tube) discloses a deformed duodenal bulb, presumably secondary to an ulcer but without visible crater at this time. The site of the burn corresponds to the greater curvature of the distal third of the stomach, an odd and inexplicable location (except in the unlikely event that tube housing itself was defective in one small area). Films of the lumbosacral spine disclose no evidence of radiation osteitis. Clinically there is no limitation of spinal movements, and except for the preexisting gastrointestinal complaints the patient is essentially well.

All 4 patients have been reassured and have been warned to avoid unnecessary exposure to radiation of any type over the involved skin area and to be careful about any skin abrasions that might develop there.

COMMENT

The series of fluoroscopic burns reported herewith could have been prevented by the following simple measures:

(a) The use of a safe distance (12 to 18 inches) between the x-ray tube and the nearest portion of the patient's skin.

(b) The use of a filter (1 mm. of aluminum or equivalent) in the x-ray beam.

(c) The use of proper speed or dispatch in examination (not over three minutes of actual exposure in any examination period; not over four such periods in a month).

(d) Adherence to standard safe factors in operating the fluoroscopic unit (voltage about 75 kilovolts, current about 3 milliamperes, beam rarely larger than 6 inches square and usually half that size, and above all proper preparation of the examiner—dark adaptation of the eyes for at least ten full minutes before commencing any fluoroscopic work).

SUMMARY

During gastrointestinal fluoroscopic examination by a physician (not a specialist) 4 patients received serious and temporarily incapacitating burns of the skin over their lumbar area, all in a single day. They were disabled for periods of three to four months, and have permanent skin and soft tissue changes in the affected areas.

Any x-ray unit is a dangerous weapon, but the small portable x-ray unit in the hands of those unfamiliar with its hazards is perhaps the most dangerous of them all, especially when used for fluoroscopy without cone or guard.

PSYCHIATRIC ORIENTATION OF THE ALCOHOLIC CRIMINAL

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Does alcohol inhibit or release aggressive drives and damaging activities against society that result in criminogenic behavior? This problem has been studied and discussed intensively by many investigators, but the evidence to date is insufficient for the conclusions to be clearcut or definitive. In general it has been our experience that criminal offenses against society are committed by individuals with poorly integrated personalities, emotional instability, conflicts with the environment and frustration; these are also found in many alcoholic addicts whose drinking is symptomatic of their inability to adjust themselves realistically to the environment and its demands on them.

One factor is clear, however; alcohol, pharmacologically, acts as a depressant on the nervous system resulting in relaxation (to varying degrees and extents) of judgment and control so that underlying forces—the personality dynamics—find a more direct mode of expression. While such underlying forces may be of a passive, *laissez-faire* nature as well as of an aggressive, disruptive one, the general result of the loosening of conscious control is the release of *id* urgings, in themselves amoral in tenor. Both practically and theoretically the response of the individual to alcohol is the response of the total personality, comprising the emotional maturity level and intellectual and physical endowment-equipment functioning in a specific environment and stimulated by specific environmental situa-

tions that activate internal reaction behavior patterns. This applies just as pertinently to the noncriminal as to the criminal alcoholic addict but, in contrast to the case of the social drinker, the effects of even slight loss of control is a hazard to the criminal (prison inmate, the parolee or the released convict) which the average social drinker does not face.

The individual who has a criminal record, if he faces reality, one of the prime objectives of modern penology, recognizes that "rightly or wrongly" society has judged, not interpreted, his behavior. Society rarely accepts legal justice, trial, incarceration and release at the end of the sentence as completely canceling the initial provocation and crime. It would be most unrealistic to expect such an attitude. Moreover, and as unrealistically, the criminal rarely seeks any deeper solution to his behavior, past and future, than that imposed by the prison sentence and thus on release frequently becomes recidivistic. Objectively, both society and the criminal are at fault in this shallow understanding of, and ostrich-like attitude to, psychologic factors involved in their mutual conflict. Because the results of the conflict affect the individual more painfully, one of the objectives of scientific minded and enlightened prison personnel should be a more than superficial insight into his difficulties with the end result that the criminal will develop a better understanding of the motivations that led to the commission of his unlawful acts and come to the blunt realization that he must in the future expect more of himself than of others and not feel that the world is to blame if he does not do his full part, and more.

Modern students of criminology, in their stress on the part that society plays in crime causation, would seem to be on the wrong track as far as the rehabilitation of the individual criminal is concerned. No matter how right or wrong society is, the delinquent must recognize that the majority of people do not commit crimes and that his criminal behavior is definitely indicative of underlying personality difficulties, characterized in part by an immature approach to life. The prisoner must be made to accept the fact that fundamentally it is his personality malintegration and attitudes that need correction; so long as he inwardly feels persecuted and belligerent, so long will his ultimate conduct acts continue to bring him into open conflict with the laws of society. The basic situation remains the job of becoming a respected and self-respecting individual, and this can be done only by the active cooperation of the individual. When he realizes that the job can be done and is worth doing, he has traveled the most difficult part of the road to rehabilitation.

The prisoner, and those working with him, must be aware of and accept these facts if he is to succeed in reintegrating himself with the community. He must understand that he will be on probation for a considerable period of time; that his actions will be closely scrutinized; that society will rebuff him and in some instances be frankly unjust, primarily because society still fears that he may regress to criminal actions.

The individual who has engaged in criminal behavior must, as a consequence, be prepared to meet with hostility and be taught how to meet this situation without becoming embittered and relapsing into earlier patterns of defensive aggression. He must become emotionally mature, or more mature than he was. If he fails to accept this, or if in a childish reaction of unthinking rage he strikes back at real or imagined provocation, it is he who will suffer.

So far as drinking is concerned, the prisoner should understand the far reaching effects of alcohol. If he drank before incarceration, if drinking was in any way associated with the planning or perpetration of his criminal acts, he should never drink again. Old habits of habitual reaction die hard, and under the influence of alcohol previous aggressive asocial forces may find easy expression. Once he makes a misstep under the influence of liquor, even if his conscious intentions were of the best, he finds himself back where he started from and burdened with intensified feelings of failure and self destructive emotions.

Drinking at any time, even for the social, controlled drinker who can stop at will, always leads to a temporary relaxation of judgment, discretion and control. We do not need scientific research to acquaint us with this fact. Alcohol, as stated, acts as a depressant on the nervous system: the quantitative and qualitative results depend on factors that vary between individuals and in the same individual at different times, owing to fatigue, sugar metabolism and psychologic state, including mood, thought and specific stimuli. Physiologic changes of functioning include poorer coordination of thought and muscular action, diminished sharpness of sensory perception and delayed and weaker motor performance with accompanying increase of error. Disregarding individual personality dynamics of alcoholism as a psychiatric illness symptom, the physical effects of alcohol are not conducive to controlled behavior, nor are its effects in any way predictable.

Alcoholism as a psychiatric abnormality is symptomatic of an underlying personality illness or disorder and must be treated as a psychiatric problem. That the alcoholic addict does not stop drinking in spite of painful experiences which include loss of job and prestige, physical torment and other related miseries should be adequate evidence that underlying factors are literally driving him to drink and that he is psychiatrically ill. No emotionally healthy individual deliberately does that which causes him to suffer, provided he is aware that suffering will result from such behavior. The alcoholic addict is, therefore, either unaware, is not sufficiently aware or does not want to be aware of the serious harmful consequences of his drinking to do anything constructive about his addiction. The reasons for this lack of insight are to be found in the unconscious and may be associated with such defined psychiatric groups as the feebleminded, the organic, the psychopath, the psychotic and the neurotic. Physiologic factors involved include cell changes and lowered resistance to the drug.

Alcoholism, uncontrolled drinking, leads to the following reaction types: acute pathologic intoxication with stupor, excitement or convulsions; acute and chronic alcoholic hallucinosis; delirium tremens; pronounced paranoid development; Korsakow's psychosis; mental deterioration. There may also be encephalopathies (brain lesions and organic changes) and neuropathies, including polyneuritic features and also, with the aforementioned reaction types, associated with avitaminotic conditions resulting from inadequate nourishment while drinking.

In general, alcoholic addicts may be classified into the following distinct groups: 1. Those who because of constitutional inadequacies (genogenic) are unable to meet life responsibilities and in addition to their drinking habits have other poor life habits. These individuals may eventually become deteriorated or asocial, requiring permanent mental hospitalization.

2. Those who are not too strongly endowed intellectually and emotionally and who suffer psychic frustration with underlying psychiatric disorders (manic depressive swings, schizophrenic reactions) which cause them to seek escape from life reality by means of alcohol. 3. Those who drink to flee from unpleasant life situations they cannot or do not wish to face and meet—the neurotic or psychogenic personality. 4. Those who drink to relieve various combinations of feelings of inadequacy, self consciousness, sexual maladjustment and the like. 5. Those who drink to narcotize physical or psychic pain. 6. Those who as a result of habit plus time and body changes and added strains and griefs of life develop from social drinkers into alcoholic addicts.

The dynamics of personality motivation which may be found in any of these groups are summarized as self pampering tendencies illustrated by a refusal to tolerate at all any unpleasant state of mind; a drive for self expression without the resolve to take the practical steps to attain it; a more than usual craving for excitement and pleasure of the senses; a habit of sidestepping duties and obligations leading to the habit of substituting the rosy anesthesia of alcoholic day dreams; a definite insistent need for the feeling of self confidence, self importance, calm and poise that some temporarily obtain from alcohol.

It is also our conviction that alcoholism is evidence of latent or overt homosexuality as medically defined, or of self destructive tendencies and deep lying anxieties, hostilities and tensions stretching far back to infantile formation of attitudes, sentiments and interpersonal relationships in which identification and imitation play a decisive role. Contrary to popular opinion, science has no proof that alcoholism is hereditary, although some individuals with an alcoholic ancestry may have lowered resistance or be more sensitive to alcohol. Social inheritance involving the identification and imitation mechanisms would seem to be the basic factors, not heredity as such.

Narcotization of anxiety is a major factor in the misuse of alcohol. In some cases this anxiety is the result of traumatic experiences in early childhood which the personality was unable to assimilate, while in others it may be due to unresolvable conflicts. Other types of personality makeups that seem to require the narcotization escape device include the tense, perfectionistic, worrisome individual; the individual who has a vague inner restlessness and feels himself to be a bystander, not a participant, in life; the emotionally immature individual, and the individual who is consistently inconsistent, whose main characteristic is that of unreliability—the total or partial psychopath.

PSYCHIATRIC THERAPY

Individual alcoholic therapy should begin, therefore, with a careful examination to determine the "type" of drinker, the personality makeup and the presence or absence of serious psychiatric or neurologic reactions in order to determine whether the patient should be placed in a mental hospital or on a health farm or be treated by regular office visits. The acutely intoxicated individual should, obviously, be placed in a mental hospital until the toxic condition has subsided and the patient is accessible to psychiatric examination. Psychiatric therapy consists of five separate but interrelated steps: examination and diagnosis; placement (hospital, farm, office); medical and psychiatric treatment; reeducation; continuous lifelong follow-up.

With all except the acutely intoxicated patient the usual psychiatric procedure is employed, including complete life history, neurologic and mental status surveys and personality and intelligence tests. It is well to obtain objective data from a friend or relative of the patient to provide factual information about the nature and extent of the drinking and resultant behavior changes. Personality and intelligence tests are of definite value in diagnosis and personality evaluation, especially when individuals are unaccompanied and no objective data can be immediately ascertained. Of these tests the Rorschach examination is the most useful and reliable in making a differential diagnosis, gauging the level and quality of emotional maturity, and in profile sketching the personality makeup of the individual.

Therapy and reeducation of the alcoholic patient, regardless of his place of treatment, is conducted along the following lines: Regular visits or interviews in which distributive analysis and synthesis allows the patient to ventilate and learn how to objectify his underlying stresses and tensions, interpersonal relationships and attitudes, goals and strivings, while at the same time following a regular daily routine (self imposed or controlled by the environment) and, through discussion and observation, to develop new insight, views and values. In this respect the benefits of socializing in the farm or hospital group are very important suggestive factors.

The goal of treatment is total permanent abstinence, and therapy is organized to achieve this by reeducating the individual, helping him to establish new habits of living, thinking, action and reaction to excitement, disappointment or out and out frustration. The nature of his drinking problem is explained to him and discussed by using specific examples chosen from his own life history and including dream material, present conflicts and so on. Simultaneously, certain fundamental psychology facts are reviewed to help the patient acquire enough knowledge to help himself.

Every patient presents an individual problem, and the treatment is approached from this angle. One of the greatest factors in successful rehabilitation of the alcoholic addict lies in the interpersonal relations of the patient and the physician, with general principles subordinated to the individual needs of the patient. Other necessary factors are the careful selection of voluntary patients with undamaged nervous system; the personality of the therapist, who should be kind but firm; time; suggestive influences and full cooperation of friends and family; lifelong follow-up. It must again be stressed that the alcoholic addict is a sick person and that his addiction and its causes extend over a long period of time. Thus his cure must be thought of as similar to the healing of tuberculosis scars, depending on his keeping in good mental and physical health. It is sound, practical, common sense for the ex-tuberculous patient to check with his physician periodically, and it is just as sound for the ex-alcoholic addict to do likewise. The crucial part of the treatment is to help the individual reach a level of emotional maturity which will enable him to live a relatively efficient, productive and contented life with kindly, tolerant, interpersonal relations and an inner poise and stability.

SOCIOLOGICAL FACTORS

Sociological factors play a definite part in the production of the anxieties, hostilities and frustrations which apparently produce a need in some individuals for the narcotizing effects of alcohol. America has

never been known as a nation of teetotalers, and alcoholism is certainly not unique in our time. Records dating back to early colonial times show that many people were even then seriously alarmed by the alcohol problem, which they felt was directly connected with mental illness and crime. By the early part of the nineteenth century alcoholism had come to be recognized as a serious moral and cultural problem and gave rise to a temperance movement that was for a long while overshadowed by the problem of slavery but burst into full bloom after the war between the states.

England, to name but one country, during the eighteenth century had an almost universal problem of alcoholism of the worst sort because of economic pressures of the industrial revolution resulting in widespread pauperism, rapid urbanization and cruel economic inequality. We should not blind ourselves with the thought that mankind has always suffered in various ways and that nothing under the sun is new. America was not settled by the ruminative inaction of the alcoholic addicts; rather was it settled in spite of the near universal drunkenness of the frontiersman. The distillery and the saloon were the invariable accompaniments of the frontier settler (cf. the Whisky Rebellion) and they in turn called forth their inevitable accompaniment of the revival meeting and the temperance pledge.

Within the last quarter century the trend toward the more moderate use of alcohol has been definitely reversed and there is a decided increase of alcoholism in all groups and ages. Some statistical surveys set the figures currently at 600,000 chronic alcoholic addicts (this does not include those who have not been admitted to hospitals), 2,000,000 heavy drinkers and about 38,000,000 social drinkers. Excluding the non-scientific experiment of Prohibition, which blossomed from the work of various sincere and well intentioned groups, we have never until recently made any organized attempt to attack this problem on a medical or coordinated basis in spite of the thousands of arrests, admissions to city psychopathic and state mental hospitals, of accidents due to alcoholism and the testimony of social workers and reformers as to the damage to life, health and property due to alcoholism.

In England, where social problems were attacked publicly for many years, Fleming reported in 1937 an 80 per cent decrease in arrests for alcoholism over a twenty-five year period due, he felt, to:

1. Social legislation.
2. Labor receiving equal rights and equal responsibilities with capital and management.
3. Legislated restricted hours of sale of alcoholic beverages.
4. More diversion on an active participating level of the white collar and working groups.
5. Temperance societies, active social service work with the individual and the family unit.

While Fleming's reasons are a patent oversimplification of an England ruled by the Tory party, racked by the great depression, housed in horrible shums and honeycombed with slowly dying blighted areas, it is interesting to contrast his analysis with the present American scene:

1. Large mobile population groups with little family cohesion, tradition of residence or homogeneity.
2. No decided social legislation until recently; no definite public disapproval of drunkenness.
3. Labor receiving "equal rights" but, as yet, not equal responsibilities and little or no political representation.

4. No restricted hours of sale of alcoholic beverages except in some states.

5. Fewer socially utilized opportunities for diversion or creative recreation.

6. Due to Prohibition, temperance societies are held either in contempt, ridicule or fear, while our social service groups have, for the most part, limited their work to curative measures with acute alcohol problems.

Several states have now set up commissions to study and deal with the alcohol problem, and we feel that the results reported in England, Scandinavia and Switzerland should be considered in the overall approach. Mental illness, juvenile delinquency and criminality are, like alcoholism, partly derived from environmental situations, and also, like alcoholism, they are on the increase. We are not likely to see any decrease of the social tensions within the next few years. We are entering an era which will probably be more chaotic, disruptive and emotionally disturbing than we have ever known. Violent changes and dreadful physical and emotional conditions throughout the world will have to affect us in many ways.

Retrospectively we understand the effects of our national expansion, restlessness, heterogeneity, industrialism and historical growth on the incidence of alcoholism to be enormous, owing to mass and individual insecurity and change in nearly all spheres of life plus quantity and quality of mobile living.

Preventive measures on a broad basis should definitely, therefore, incorporate ways and means of helping to modify or change our social environment so that it will not tend to stimulate the production of anxiety and tension but rather will tend to provide relative security and support through healthy community living. Opportunities for such now exist in the mediums of parent-teacher association groups, adult education centers, civic organizations, and the like, but the general public is either uninformed or does not utilize these to the fullest extent. It is up to the leaders in all fields to act more vigorously to help bring a deeper participation and interest in such groups. Preventive measures must of necessity stress the recognition of early signs of emotional illness and provide facilities for prompt examination and treatment, as well as prophylaxis.

In specific reference to the problem of alcoholism, from the immediate practical point of view, we need to train more workers to treat the individual alcoholic addict; we need to set up more and more adequate facilities, such as hospital wards, psychiatric hospitals, reception centers associated with mental hygiene clinics at which patients and relatives could receive help through diagnostic, placement and treatment services being available.

We are on the road to achieving these goals and with the cooperation of all groups having the same purposes and with community and individual support and work we should accomplish some of our aims within the coming years.

Meanwhile it is definitely the obligation of all workers and educators to explain the fundamental facts of alcoholism to the community and to drive home over and over again that alcoholism is a symptom of a psychiatric disorder, illness or maladjustment; that the alcoholic addict cannot stop drinking at will and is different from other social drinkers; that he can be helped, treated and rehabilitated; that the alcoholic addict in contemporary America is partly a product

of our culture and its inherited and present strains and tensions, and that in addition to treating the alcoholic individual we must help reorient our culture and social ways of thinking and living to a more decent, vital and spiritually productive level.

SUMMARY

The nonpsychotic nondeteriorated prisoner who sincerely desires to rehabilitate himself has, we feel, a splendid opportunity to take advantage of modern scientific psychologic knowledge that will enable him, practically, to help himself and others in understanding that criminal behavior and alcoholism are not only waste products of a society that does not care about the individual's welfare but also of individuals who do not care about the welfare of society.

If he wants to, the prisoner can by his behavior do much to stimulate sound reforms in thinking about these very similar personality reactions—criminality and alcoholism—and to support sound ways of helping prevent their incidence in such large numbers; for, since truth is never hackneyed to those who desire truth, "Actions speak louder than words" and "As we would have others be and behave so should we behave and be." Therefore the prisoner who understands that his criminal acts were the result of emotional instability and poor integration of his personality assets that precluded his feeling and being a part of the social group should understand that the use of alcoholic beverages would definitely reactivate these disruptive conditions; and he should for his own sake keep in mind that:

1. His period of being on trial extends beyond the prison sentence and parole: he must be prepared to meet with rebuffs in a mature manner of tolerance and forgiveness.

2. He, as an individual, has physical, intellectual and emotional drives which he must learn to control if he is to have any measure of "happiness" or inner security.

3. The use of alcoholic beverages (including beer and wine) always tends to relax self control and to set free any underlying forces. Whether or not he feels that he has an alcohol problem, he should never drink again. From the down to earth point of view, he should recognize that the average man or woman naturally tends to be overcritical of the criminal, and a discharged criminal who is known to drink will necessarily be thought of with less confidence and more distrust than the known nondrinker. Conversely, the discharged prisoner who does not drink is given more moral support by the community, and life is made considerably easier for him. There is here a definite choice the prisoner himself can make between the relatively easy and the relatively hard way of readjusting to and being accepted by the community.

CONCLUSION

Alcoholism in America is a serious national health problem; the problem of criminality is closely associated in the personality field with alcoholism; neither the alcoholic addict nor the criminal (provided there are no organic or deterioration changes) should be viewed as hopelessly beyond rehabilitation. Society must assume its responsibilities on a realistic basis to help provide environments that do not tend to produce retarded or warped personalities; and individuals themselves must take some responsible purposive action along these lines and not, in an infantile manner, expect the community or the state to administer to all their wants and desires.

ADMINISTRATION OF PENICILLIN
BY MOUTHWITH RESULTS IN THE TREATMENT OF
GONORRHEA

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Many attempts have been made to administer penicillin effectively by mouth. Abraham and his co-workers,¹ in 1941 reported unsatisfactory results even when the penicillin was protected by a coating of phenyl salicylate but found that, when given through a duodenal tube, detectable levels were present in the blood for three hours. Herrell, Heilman and Williams² in 1942 stated that penicillin was destroyed by the acid of the stomach but that some absorption occurred when sodium bicarbonate was given conjointly. Powell and Jamieson³ also reported that penicillin cured staphylococcal infections in mice when given in combination with sodium bicarbonate. Rammelkamp and his co-workers,⁴ in two papers in 1943 confirmed the impression that oral administration was unsatisfactory, although duodenal absorption occurred, and showed that patients with achlorhydria absorbed the drug fairly satisfactorily. The Floreys⁵ tested cellulose hydrogen acetate phthalate as an enteric coating but found that, while penicillin could sometimes be demonstrated in the blood, reliable therapeutic levels could not be assured, and also that administration by duodenal tube was unreliable. In 1944 Free and his associates⁶ showed that, after large doses of penicillin by mouth, more antibiotic activity was demonstrable in the urine than when given together with sodium bicarbonate.

Libby⁷ early in 1945 demonstrated the protective property of cottonseed oil against destruction by gastric acid of orally administered penicillin. At about the same time several other promising reports appeared. Little and Lumb⁸ recommended giving penicillin with raw egg as a stabilizer after administration of sodium

bicarbonate. McDermott and his co-workers,⁹ using huge doses (350,000 units) of penicillin in water, achieved blood levels of 1 unit per cubic centimeter at one hour's time. Moses¹⁰ obtained therapeutic effects when penicillin was taken in high concentration (20,000 units per cubic centimeter), but estimations of the blood level were not made. György and his co-workers¹¹ administered penicillin with 1 to 5 Gm. of trisodium citrate, with the attainment of blood concentrations of 0.2 unit per cubic centimeter after one hour. Charney, Alburn and Bernhart¹² also used trisodium citrate and other gastric antacids and were able to obtain urinary excretions of 18 per cent of the dose administered. Burke, Ross and Strauss¹³ gave large doses (100,000 to 200,000 units) of penicillin in a double capsule, hardened by immersion in formaldehyde and alcohol, with resultant phenomenal levels of up to 10 units of penicillin per cubic centimeter of blood. Moldavsky and Hesselbrock,¹⁴ also using 100,000 unit doses, coated the penicillin capsules with phenyl salicylate and produced blood levels of 0.75 unit per cubic centimeter at the end of thirty minutes. Paul and his co-workers¹⁵ and Krantz, Evans and McAlpine¹⁶ used aluminum dihydroxyaminoacetate as an antacid, with doses of 100,000 units of penicillin, or more, and successfully cured gonorrhea. With the same adjuvant Krantz, Evans and McAlpine,¹⁶ using 100,000 units of penicillin, produced serum levels of 0.68 unit per cubic centimeter at three hours. Finally Loewe and others¹⁷ further explored the possibility of rectal administration with cacao butter suppositories containing up to 1 million units of penicillin. Levels of penicillin in the blood as high as 0.77 unit per cubic centimeter were obtained.

Our initial experiences¹⁸ with a wide variety of adjuvants and several enteric coatings suggest that there are three variables in the problem of the absorption of penicillin. The first is destruction by gastric acidity. The second is the rate of absorption from the upper bowel. Penicillin is so quickly excreted by the kidneys that absorption must be rapid if a measurable level is to be obtained in the blood. The third factor is destruction by penicillinase-producing organisms in the bowel.¹⁹ This appears to be less important than the other variables for peroral administration, since the flora in the upper intestine is probably sparse. Also absorption of penicillin occurs from ligated loops of colon in the rat,²⁰ although to a lesser extent than from the duodenum. Results to be published elsewhere²¹ show that in rabbits the same levels of penicillin in the blood follow injection of the agent into a branch of the portal vein as into an ear vein. This suggests that, if absorbed,

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[illegible]

TABLE 2.—Enteric Coating Enclosing Both Penicillin and Adjuvant—Continued

Mixture of Penicillin Containing	Units of Penicillin Sodium	Enteric Coating	Maximum Blood Level, Unit/Cc.	Mixture of Penicillin Containing	Units of Penicillin Sodium	Enteric Coating	Maximum Blood Level, Unit/Cc.
C. Organic Solvents—Continued				E. Protoplasmic Poisons			
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0	Quinine sulfate 0.6 Gm.	50,000	"Enterab"	0.03
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0	Quinine sulfate 0.3 Gm.	50,000	"Enterab"	0
Triisopropanolamine 0.4 cc. + propylene glycol 0.4 cc.	50,000	"Enterab-cellulose"	0.03	Quinine sulfate 0.3 Gm. + propylene glycol 0.4 cc. + triisopropanolamine 0.4 cc.	50,000	"Enterab"	0.03
				Quinine sulfate 0.3 Gm. + triisopropanolamine 0.5 cc.	50,000	"Enterab"	0
D. Salicylates				F. Natural Oil			
	Sodium Penicillin						
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03	Cottonseed oil 0.8 cc.	50,000	"Enterab-cellulose"	0
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03	Cottonseed oil 0.8 cc.	50,000	"Enterab-cellulose"	0
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03	Cottonseed oil 0.8 cc.	50,000	"Enterab-cellulose"	0
Acetylsalicylic acid 1 Gm.	50,000	"Enterab"	0.03	Cottonseed oil 0.8 cc.	50,000	"Enterab-cellulose"	0
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.06	Cottonseed oil 0.8 cc.	50,000	"Enterab-cellulose"	0
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.06	Cottonseed oil 0.8 cc.	50,000	"Enterab-cellulose"	0
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.03	Cottonseed oil 0.8 cc.	50,000	"Enterab-cellulose"	0.03
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.03	Cottonseed oil 0.8 cc.	50,000	"Enterab-cellulose"	0.06
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0.12	Cottonseed oil 3 cc.	50,000	None	0.03
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm.	50,000	"Enterab"	0	G. Alkalis			
Acetylsalicylic acid 1 Gm. + sodium bicarbonate 1 Gm. without penicillin	None	"Enterab"	0	Trisodium citrate 1 Gm.	50,000	"Enterab-cellulose"	0
Sodium bicarbonate 1 Gm.	50,000	"Enterab"	0	Trisodium citrate 0.75 Gm.	50,000	"Enterab-cellulose"	0.12
Sodium bicarbonate 1 Gm.	50,000	"Enterab"	0	Trisodium citrate 0.75 Gm.	50,000	None	0.06
Methyl salicylate 0.5 cc.	50,000	"Enterab"	0	Trisodium citrate 0.75 Gm.	50,000	None	0.12
	50,000	"Enterab"	0	Sodium carbonate 0.1 Gm.	50,000	"Enterab-cellulose"	0.03
	50,000	"Enterab"	0	Sodium carbonate 0.25 Gm.	50,000	"Enterab-cellulose"	0.12
	50,000	"Enterab"	0	Sodium carbonate 0.5 Gm.	50,000	"Enterab-cellulose"	0.06
Sodium salicylate 1 Gm.	50,000	"Enterab"	0.03	Sodium carbonate 0.5 Gm.	50,000	"Enterab-cellulose"	0.03
Sodium salicylate 1 Gm.	50,000	"Enterab"	0.03	Sodium carbonate 0.5 Gm.	50,000	None	0.06
Sodium salicylate 1 Gm. + triisopropanolamine 0.8 cc.	50,000	"Enterab"	0.03				
Salicylaldehyde 0.1 cc.	50,000	"Enterab"	0	H. Miscellaneous			
Acetylsalicylic acid 1 Gm. + ethyl alcohol 1 cc.	50,000	"Enterab-cellulose"	0.06	Propadrine 0.05 Gm.	50,000	"Enterab"	0
Acetylsalicylic acid 1 Gm. + ethyl alcohol 1 cc.	50,000	"Enterab-cellulose"	0.12	Neostigmine 0.0075 Gm.	50,000	"Enterab"	0.03
Acetylsalicylic acid 1 Gm. + acetone 1 cc.	50,000	"Enterab-cellulose"	0.03	Urea 5 Gm.	50,000	"Enterab"	0
Acetylsalicylic acid 1 Gm. + ethyl acetate 1 cc.	50,000	"Enterab-cellulose"	0	Urea 0.75 Gm.	50,000	"Enterab"	0
Acetylsalicylic acid 1 Gm. + methanamine 0.5 Gm.	50,000	"Enterab-cellulose"	0.06	Sodium hexametaphosphate 0.75 Gm.	50,000	"Enterab"	0
Acetylsalicylic acid 1 Gm. + methanamine 0.5 Gm.	50,000	"Enterab-cellulose"	0.03	Sodium hexametaphosphate 0.2 Gm.	50,000	"Enterab"	0
				Sodium hexametaphosphate 0.1 Gm.	50,000	"Enterab"	0
				Congo red 0.5 Gm.	50,000	"Enterab"	0

given either in water or in a gelatin capsule, 3 of 6 subjects showed a blood level of 0.06 unit per cubic centimeter after one to one and one-half hours, while the other 3 had no measurable concentration. This showed that, although persons with anacidity might absorb penicillin, the levels that were obtained were not particularly high. Furthermore, other factors, such as absorption, must also be important, as some of the subjects failed to absorb it, even in the absence of acid.

Therefore, in six further trials, adjuvants were added to the penicillin to see if the absorption could be made more certain. A mixture of acetylsalicylic acid 1 Gm. with sodium bicarbonate 1 Gm. was used in four of the trials, with urea 0.6 Gm. and atabrine 0.1 Gm. in the other two, respectively. In all cases penicillin was absorbed, the average level in the blood at one to one and one-half hours being 0.06 unit per cubic centimeter.

Thus there is a further indication that destruction by acid, although perhaps it is of primary importance, is not the only factor limiting the usefulness of penicillin by mouth, and that the regularity of its absorption may be increased by adjuvants. This might be presumed to be particularly true in persons who have gastric acid, for even the best enteric coating is probably only a partial protection.

SINGLE TRIALS IN PERSONS WITHOUT GASTRIC ACHLORHYDRIA

An extensive survey of the absorption of penicillin in various combinations and with various enteric coatings was made in normal persons or patients without gastric achlorhydria. Most of the subjects were either fasting or at least two hours postprandial. The usual dosage of penicillin was 50,000 units, given in a size 00 gelatin capsule, although occasionally other dosages or forms of administration were used. The blood level of penicillin was usually estimated from three to four times, at one-half to one hour intervals. The maximum, which was usually at one hour, was the basis for comparison. Sodium penicillin was used throughout, except as noted. When it was thought that an adjuvant, also placed in the capsule, might destroy the penicillin, the penicillin was placed in a size 5 inner capsule. In many instances some form of enteric coating was applied to the outside of the capsule. These included "Enterab," a resin, dissolved in acetone, supplied by Abbott Laboratories, North Chicago, Ill.; a castor oil-shellac coating; solution of formaldehyde U. S. P. diluted 1:20 for five seconds followed by ethyl alcohol for five minutes; cellulose hydrogen acetate phthalate dissolved in acetone (hereafter called "cellulose"); a mixture of equal parts of the "Enterab" and "cellulose" solutions (hereafter called "Enterab-cellulose"); and "Seal-Ins," supplied by the "Seal-Ins" Laboratories, Los Angeles.

The results are grouped in the following five sections:

1. *Penicillin Without Adjuvant or Enteric Coating.*—Penicillin in a dose of 50,000 units was given in a single gelatin capsule to 1 normal subject and in a dose of 100,000 units to 3 others, with the following blood levels at one-half hour respectively: 0.12, 0.06, 0.06 and 0.03 unit per cubic centimeter. These levels are easily in the therapeutic range and support the statement of McDermott and his co-workers²⁴ that penicillin in water, in large doses, is readily absorbed.

To test the claim of Moses¹⁶ that small amounts of penicillin in concentrated solution would be absorbed, 50,000 units of penicillin in 2.5 cc. of water was held in the mouth for thirty minutes, and on two subsequent occasions this amount was slowly swallowed. At no time could penicillin be found in the blood. As the latter two trials are in a sense an extension of the tests already described, it is seen that there is considerable variation in the absorption of unprotected penicillin.

2. *Penicillin Mixtures Not in Capsules.*—Seven trials on 4 normal persons were made with mixtures of penicillin and an alkali, adsorbent or antiseptic, as follows: 20,000 units of penicillin with 30 cc. of aluminum hydroxide gel; 20,000 units with 15 Gm. of sodium bicarbonate plus 5 Gm. of charcoal; 20,000 units with 30 cc. of cream; 80,000 units with 15 Gm. of silica gel; 50,000 units with 1 Gm. of sodium alkyl sulfate; 50,000 units with 50 mg. of gentian violet, and 50,000 units with 10 cc. of ethyl alcohol. In no case was penicillin demonstrable in the blood.† This confirms the previously reported²¹ poor success with large amounts of antacids given conjointly.

3. *Penicillin in Enteric Coated Capsules.*—Six trials in 5 normal persons were made in which the penicillin was protected by enteric coatings as follows: 20,000 and 50,000 units of penicillin in a gelatin capsule coated with "Enterab"; 20,000 units coated with castor oil shellac; 20,000 units with "Seal-Ins"; 20,000 units with "cellulose," and 50,000 units with "Enterab-cellulose." Only with the last preparation was absorption measurable, 0.03 unit per cubic centimeter of blood appearing at one hour and lasting for two and one-half hours. These results are in agreement with the early reports²⁵ claiming that enteric coating gave unsatisfactory results but are decidedly inferior to the results obtained with formaldehyde hardened¹⁵ and phenyl salicylate coated¹¹ capsules reported recently. As shown in a later section dealing with continued administration, we have been unable to confirm the high absorption reported by Burke and his co-workers,¹³ although our penicillin dosages were somewhat smaller.

4. *Penicillin in Enteric Coated Capsules, with Adjuvant Given Separately.*—Eight trials were made on 3 normal persons and 1 patient with the penicillin enclosed in an enteric coating and, separately, an adjuvant intended to promote absorption or protect the penicillin (table 1). A mixture of acetylsalicylic acid and sodium bicarbonate was moderately effective. Sulfadiazine also produced a moderate blood level, but part of this may have been due to the antibacterial action of the sulfonamide itself.

5. *Penicillin with Adjuvants in Capsules, Usually Enteric Coated.*—Most of the single dose trials which were made belong in this category.† Penicillin was combined with several general types of agents, namely antiseptics, surface tension reducers, organic solvents,

salicylates, protoplasmic poisons, a natural oil, alkalis and miscellaneous agents. Certain of the adjuvants obviously could be classified under more than one type. In the majority of trials the capsules were enteric coated. A total of 152 tests in over 50 normal subjects or patients was made, with results shown in table 2.

Of the antiseptics only methenamine was promising, and of the surface tension reducing agents only sodium alkyl sulfate and aerosol OT10 gave any absorption. This suggests that bacterial destruction is unimportant in the region where penicillin is released.

The organic solvents were more effective.† Ethyl alcohol and acetone, in particular, gave occasionally good, though erratic, absorption. Triisopropanolamine, however, gave highly consistent and fairly adequate blood levels. In a dose of 0.8 cc. it often produced some nausea, but in doses of 0.5 cc. or less this was not present. The highly alkaline nature of triisopropanolamine (pH 11) suggested that perhaps the effect was simply due to this factor and not to an effect on intestinal permeability. Triisopropanolamine slowly destroys penicillin when the two agents are in contact, necessitating a separate, inner capsule for the penicillin. Whether the alkalinity of this amine is responsible for the destruction or some other change in the penicillin was not determined. Inner capsule protection for solid alkalis, such as trisodium citrate, did not appear to be necessary.

† A comparison of sodium penicillin with calcium penicillin was made in the triisopropanolamine series. The average blood level in twenty trials with sodium penicillin was 0.047 unit per cubic centimeter; with calcium penicillin in ten trials it was 0.018 unit per cubic centimeter. Because of the inferior showing of the calcium salt, only the sodium salt was used in the remainder of the trials.

† Acetylsalicylic acid, especially when combined with sodium bicarbonate, was moderately effective in promoting the absorption of penicillin, but other salicylates were ineffective.

† The protoplasmic poisons, such as quinine, and several miscellaneous agents were relatively ineffective.

† In spite of the reported⁷ efficacy of cottonseed oil, we obtained no absorption when the dose of penicillin was the usual 50,000 units, but 100,000 units gave satisfactory levels.

We were able to confirm, however, reports²⁶ stating that antacids, in particular trisodium citrate, were effective adjuvants. As sodium carbonate is a still stronger alkali, comparisons were made with this salt, without any significant difference from the sodium citrate.

The enteric coatings varied considerably in their action. With a large dose of penicillin (100,000 units) they may contribute little or nothing to the ultimate blood level. "Enterab" protected capsules (as we made them) usually disintegrated in the stomach (fluoroscopic evidence) about twenty minutes after ingestion, while uncoated capsules broke within ten minutes. "Cellulose" protected capsules were more durable and often did not break for one or two hours, and then not in the stomach. This would seem to be the exact type of protection theoretically desirable, but the results were uniformly less satisfactory than with a less resistant coating. Capsules coated with a mixture of equal parts of "Enterab" and "cellulose" usually disintegrated in the stomach or duodenum within thirty to forty-five minutes after ingestion. With continued administration, described in the next section, enteric coatings appeared to add slightly to the effectiveness of peni-

24. Herrick, Hiltman and Williams.² Rammelkamp and Keefer.⁴
Rammelkamp and Helm.⁴
25. Abraham, Chain, Fletcher, Gardner, Heatley, Jennings and Florey.¹
Florey.²

26. György,¹¹ Charney, Alburn and Bernhart.¹²

TABLE 3—Repeated Administration of Capsules of Penicillin; Individual Patients

Adjuvant	Penicillin (Each Dose) Units	Enteric Coating	Average of 10 Blood Estimations, Unit/Cc.	Per Cent of Penicillin Excreted in Urine	Symptoms	Adjuvant	Penicillin (Each Dose) Units	Enteric Coating	Average of 10 Blood Estimations, Unit/Cc.	Per Cent of Penicillin Excreted in Urine	Symptoms
None	50,000	None	0	13	Diarrhea		50,000	"Enterab-cellulose"	0.003	4	None
	50,000	None	0.024	6	None				(0.033)	(7)	
	50,000	None	0.012	14	None				0.012	(7)	Weakness
	50,000	"Enterab-cellulose"	0	5	None		25,000	"Enterab-cellulose"	0.009	7	None
	50,000	"Enterab-cellulose"	0.015	2	None		25,000	"Enterab-cellulose"	0.009	5	None
	50,000	"Enterab-cellulose"	0.045	1	None		25,000	"Enterab-cellulose"	0.012	5	None
	50,000	"Enterab-cellulose"	0.021	1	None		25,000	"Enterab-cellulose"	0.024	10	None
			(0.020)						(0.013)	(8)	
	50,000	"Cellulose"	0.001	3							
	50,000	"Cellulose"	0	3							
			(0.001)								
	50,000	Formaldehyde	0.025	5	(7)						
None (patients had achlorhydria)	50,000	None	0.120	50	None	Tri-n-propylamine 0.5 cc. or 0.4 cc. plus 0.4 cc. of propylene glycol (A Freshly made capsules, or penicillin enclosed in inner capsule)	100,000	"Enterab-cellulose"	0.075	16	Weakness
	50,000	None	0.011	12	None		100,000	"Enterab-cellulose"	0.013	4	Diarrhea
			(0.005)	(31)			100,000	"Enterab-cellulose"	0.021	10	Diarrhea
Zephiran 0.1 Gm	50,000	"Cellulose"	0	0	None		100,000	"Enterab-cellulose"	0.007	39	None
Acetylsalicylic acid 0.5 Gm. plus sodium bicarbonate 0.5 Gm	50,000	"Enterab-cellulose"	0.013	7	Dizziness		100,000	"Enterab-cellulose"	0.009	11	None
	50,000	"Enterab-cellulose"	0.012	2	None		100,000	"Enterab-cellulose"	0.030	14	None
	50,000	"Enterab-cellulose"	0	1	None				(0.019)	(16)	
	50,000	"Enterab-cellulose"	0.001	9	None		50,000	"Enterab-cellulose" (plus 0.6 cc. cottonseed oil)	0.015	1	None
			(0.007)								
1 Ethyl alcohol 2.5 cc	50,000	"Enterab-cellulose"	0.013	13	None	Tri-n-propylamine 0.5 cc. or 0.4 cc. plus 0.4 cc. of propylene glycol (B Capsules made more than 1 day before use)	50,000	"Enterab-cellulose"	0.003	0	None
Acetone 2.5 cc	50,000	"Enterab-cellulose"	0.020	22	None		50,000	"Enterab-cellulose"	0.025	..	Diarrhea
	50,000	"Enterab-cellulose"	0	12	None				(0.014)	(9)	
	50,000	"Enterab-cellulose"	0	10	None		25,000	"Enterab-cellulose"	0	8	None
			(0.003)	(14)			100,000	"Enterab-cellulose"	0	0	Dizziness
Acetylsalicylic acid 1 Gm. plus methenamine 0.5 Gm	50,000	"Enterab-cellulose"	0	1	Nausea	Trisodium citrate, 0.6 to 0.75 Gm	50,000	None	0.01	2	None
	50,000	"Enterab-cellulose"	0.006	3	Nausea		50,000	None	0.03	7	None
	50,000	"Enterab-cellulose"	0	1	None		50,000	None	0.027	2	None
			(0.002)	(2)			50,000	"Enterab-cellulose"	0.012	37	None
Cottonseed oil 0.8 cc	50,000	None	0.001	23			50,000	"Enterab-cellulose"	0.012	37	None
	50,000	"Cellulose"	0.001	6	(17)		50,000	"Enterab-cellulose"	0.01	25	None
			(0.000)				50,000	"Enterab-cellulose"	0.024	7	None
Tri-n-propylamine 0.5 cc (A Freshly made capsules)	50,000	"Enterab-cellulose"	0.045	13	Vomited once		50,000	Formaldehyde	0.02	10	None
									(0.021)	(19)	
Tri-n-propylamine 0.5 cc (B. Capsules made more than 1 day before use)	50,000	"Enterab-cellulose"	0.016	5	None		100,000	None	0.043	11	None
	50,000	"Enterab-cellulose"	0.007	8	Nausea		100,000	None	0.04	7	None
	50,000	"Enterab-cellulose"	0.013	7	None		100,000	"Enterab-cellulose"	0.04	6	None
	50,000	"Enterab-cellulose"	0.001	2	Vomited twice				(0.055)	(3)	
	50,000	"Enterab-cellulose"	0.012	3	Vomited once		50,000	None	0.075	8	None
	50,000	"Enterab-cellulose"	0.015	6	Nausea						
			(0.011)	(7)							
Tri-n-propylamine 0.5 cc. or 0.4 cc. plus 0.4 cc. of propylene glycol (A Freshly made capsules, or penicillin enclosed in inner capsule)	50,000	None	0.022	11	Diarrhea	Sodium carbonate 0.5 Gm	50,000	None	0.018	11	Vomited twice
	50,000	"Enterab-cellulose"	0.001	..			50,000	"Enterab-cellulose"	0.024	..	None
	50,000	"Enterab-cellulose"	0.012	4	None		50,000	"Enterab-cellulose"	0.021	17	None
	50,000	"Enterab-cellulose"	0.002	1	None		50,000	"Enterab-cellulose"	0.025	14	None
	50,000	"Enterab-cellulose"	0.018	15	Diarrhea		50,000	"Enterab-cellulose"	0	17	None
									(0.014)	(17)	
							100,000	"Enterab-cellulose"	0.075	8	None
							100,000	"Enterab-cellulose"	0.04	16	None
							100,000	"Enterab-cellulose"	0.045	12	None
									(0.018)	(12)	
							50,000	"Enterab-cellulose" (plus 0.6 cc. cottonseed oil)	0.013	..	None
							50,000	"Enterab-cellulose" (plus 0.6 cc. cottonseed oil)	0.01	25	None
									(0.014)	(25)	

* Averages given in parentheses

cillin-alkali combinations but prevented some gastric distress which the stronger alkalis otherwise caused.

The great number of unsuccessful trials, in spite of the fact that unprotected penicillin alone may be absorbed, requires explanation. Possibly some of the adjuvants destroy the drug, but this can hardly be generally true. Our trials with penicillin alone were mostly with higher doses, and it is probable that there would be many failures with single doses of 50,000 units of penicillin.

Many of the trials which failed to produce a demonstrable blood level gave urinary levels of several units per cubic centimeter. This strengthened our conviction that it was important to accelerate the absorption of penicillin in order to keep ahead of the urinary loss.

REPEATED ADMINISTRATION OF CAPSULES OF PENICILLIN

The single trials of penicillin in various combinations discussed in the previous section indicated which should be tried on repeated administration. The latter means of testing is more crucial, as in a test lasting over many hours the effects of food, state of mind, accumulation of the drug and cumulative toxicity of the adjuvant may be more easily evaluated.

Therefore the more promising agents and combinations were tried on repeated administration in patients. Of the 77 subjects, all but 6 were males, most of them with gonococcal infections. The usual course of administration lasted twenty hours, with the penicillin capsules being given every two hours. Blood was taken for the estimation of penicillin one hour after each dose. The total urine for the twenty hours of the trial, plus an additional four hours, was also collected and its penicillin content determined. The results are summarized in table 3, in which groups of comparable trials are averaged separately.

When penicillin was given without adjuvants, except enteric coating, in ten repeated administrations to 10 patients, the average blood level for the one hundred determinations was 0.015 unit per cubic centimeter and the average urinary recovery 5 per cent of the doses ingested. When no enteric coating was used, the average blood concentration was 0.012 unit per cubic centimeter, with "Enterab-cellulose" it was 0.020, with "cellulose" 0.004 and in a single trial with formaldehyde hardening 0.025. Thus, although there is considerable variation, with some total failures of absorption, it is seen that penicillin is absorbed moderately well in these doses (50,000 units) without adjuvants or enteric coatings and that a good enteric coating ("Enterab-cellulose" or "formaldehyde hardening") increases the degree of absorption, while too resistant a coating ("cellulose") interferes with absorption. It may be concluded that any combination containing 50,000 units of penicillin must produce an average blood concentration above 0.02 unit per cubic centimeter to surpass in efficiency the simple combination of penicillin and a light enteric coating.

The absorption in the 2 patients with gastric anacidity are revealing in showing that acidity alone is not the only determining factor, thus confirming the individual results in a previous section. In 1 patient the excellent absorption is according to expectation, while in the other the low values probably indicate poor penetration through the intestinal wall.

Results in 12 patients with zephiran, acetylsalicylic acid with sodium bicarbonate, ethyl alcohol, acetone, acetylsalicylic acid with methenamine, and cottonseed oil were irregular, and not outstanding. While fair absorption was occasionally demonstrated, the average

values were lower than those with penicillin and a simple enteric coating. This may indicate that these agents actually interfere with the absorption of, or destroy, penicillin, but to us it seems more likely, considering also the early results with single doses, that in a larger series some of these combinations would prove to enhance absorption minimally. However, this is obviously of no practical help. We also have the impression, although confirmation is impossible, that the penicillin currently available (May 1945) produces somewhat higher blood levels than that of a year ago. Our trials with penicillin in simple enteric coatings have been recent, for the most part, and therefore may gain in comparison to trials of several months ago. Although the various brands have differed greatly in color and potency per unit weight, we have not detected any particular difference in the results of oral administration. The following brands have been used: Wyeth, Cutter, Pfizer, Lilly, Burroughs and Wellcome, Squibb, Commercial Solvents and Schenley.

The three final combining agents, triisopropanolamine, trisodium citrate, and sodium carbonate, gave much more satisfactory results, easily of clinical value.

Triisopropanolamine was used on 29 patients, and the conclusions are therefore based on nearly 300 blood estimations. The larger dose of the adjuvant, 0.8 cc., used initially, was discontinued because of frequent nausea and vomiting, which did not occur with one-half this dose. The addition of 0.4 cc. propylene glycol to the smaller dose of triisopropanolamine did not enhance the action and was therefore also discontinued.

The "Enterab-cellulose" coating was used in nearly all the trials, particularly as in single dose tests this appeared to lessen the likelihood of gastrointestinal irritation.

Taking only the results with the smaller dose of triisopropanolamine and with freshly made capsules, or those in which the penicillin was protected, the average blood concentration in six trials with 50,000 units of penicillin was 0.038 unit per cubic centimeter, or nearly twice that obtained with the use of the simple enteric coating alone. With 25,000 units of penicillin in each dose the average in five trials was 0.013 unit per cubic centimeter, showing that the larger dose enhanced the degree of absorption. In six trials with 100,000 units the average blood concentration was 0.049 unit per cubic centimeter, a value less than would have been expected if the blood concentration rose proportionately to the increase in dose. This suggests that a dose of 50,000 units may give the maximal relative absorption. Further trials would be necessary to establish this conclusively, as the urinary excretion from 100,000 unit doses was about twice that with 50,000 unit doses. The high variability of the antibiotic activity of the urines, however, precludes their acceptance as reliable criteria of absorption. Very likely the rate of destruction of penicillin in the urinary tract, and after collection of the specimen, depends on variables such as infecting or contaminating organisms and the temperature. We were unable to correlate the content of penicillin with the p_H of the urine.

The systemic toxicity of triisopropanolamine is negligible. It has been used for several years as an ingredient in sobisminol mass, a bismuth product for oral treatment in syphilis. Considerably more labor, however, is involved in preparing capsules in which the penicillin must be enclosed in a second, smaller capsule than in those combinations in which it can be freely mixed with the adjuvant.

Trisodium citrate as the adjuvant, in eight trials with 50,000 units of penicillin, gave an average blood level of 0.021 unit per cubic centimeter, or about one-half that when triisopropanolamine was used. In three trials with 100,000 units, however, the average was 0.055 unit per cubic centimeter, or slightly greater than with triisopropanolamine. A similar result was obtained with sodium carbonate, which is a stronger alkali than sodium citrate, more closely resembling triisopropanolamine in this respect. The average concentration after 50,000 units with sodium carbonate was 0.024 (five trials) and with 100,000 units 0.058 (three trials). Here the trend, at least, was toward doubling the blood concentration when the dose was doubled.

A comparison, then, of the results obtained with the three agents triisopropanolamine, trisodium citrate and sodium carbonate shows them to be of about equal efficiency in promoting the absorption of penicillin. With 50,000 units of penicillin, triisopropanolamine appears to give the best results, but with 100,000 units this superiority is not evident. This similar efficacy and the common characteristic of alkalinity suggest that it is solely this factor which is of importance in the action of these adjuvants. If triisopropanolamine has a direct action on the intestinal mucosa to increase permeability, other than that which any alkali might possess, it cannot be of outstanding importance. It is possible than any alkali, in addition to neutralizing acid, might effect intestinal permeability, but this action would not appear to be great.

The addition of small amounts of cottonseed oil to any of the three adjuvants just described did not give any great difference in absorption. Although it was felt that with penicillin alone, and with most adjuvants, a light enteric coating improved absorption and decreased irritation, this was not evident with trisodium citrate. This is important when penicillin capsules are to be made extemporaneously, as the process then becomes quite simple, as follows: Pack one-half the contents (50,000 units), or the entire contents (100,000 units), of a commercial vial of penicillin in a size 00 capsule, and then fill the capsule with trisodium citrate. Administer such a capsule every two hours.

RESULTS IN THE TREATMENT OF GONORRHEA

Fifty-three of the 77 patients treated with repeated doses of penicillin (table 3) had acute gonorrhea. The remainder suffered from various diseases (pyogenic dermatitis, prostatitis, cystitis, infected wounds, and so on), in which exact assessment of cure or improvement was impossible. Of the 53 patients with acute gonorrhea 38, or 72 per cent, were cured, as judged by three negative prostatic cultures at weekly intervals after treatment. Of the failures 4 were so counted because of inadequate follow-up. Of the remaining 11 failures 4 were the patients whose individual doses were 25,000 units (a total of 250,000 units for the entire course of treatment). Obviously this dosage is inadequate, although by intramuscular injection cure would seem assured. The remaining 7 failures were all with individual doses of 50,000 units (total 500,000 units for the course) and consisted of 1 with acetylsalicylic acid and sodium bicarbonate combination, 2 with triisopropanolamine (but penicillin not protected from adjuvant), 2 with sodium carbonate (but heavy cellulose coating on one), 1 with cottonseed oil and 1 with trisodium citrate.

Thus it is apparent that a total dose of one-half million units, prepared in one of the superior combinations, may be expected to produce a high incidence of cure in acute gonorrhea in the male, probably 90 per cent.

COMMENT

A survey of the problem of peroral absorption of penicillin shows that, although destruction by gastric acid, lack of intestinal absorption and destruction in the bowel by penicillinases are all theoretically of importance, the available adjuvants act primarily only on the first mechanism. Three alkalis, namely, triisopropanolamine, trisodium citrate and sodium carbonate, are of about equal effectiveness and improve the absorption of penicillin over that obtained by other methods, including penicillin without adjuvants. These alkalis are also more effective than any of several enteric coatings, although a light enteric coating may improve results slightly. By means of such combinations the absorption of penicillin by normal persons becomes approximately that obtained in persons with gastric achlorhydria. This suggests that any great improvement over these results will come, not with another antacid, but with an agent which promotes the penetration of the drug through the intestinal mucosa. At present the production of such an effect is speculative. Quinine, methenamine, the salicylates and possibly triisopropanolamine or other alkalis may depress the mucosal cells directly and so be conducive to such an effect. The organic solvents may affect the lipoids of the cell surfaces, possibly by extracting or altering certain elements which would decrease their normal protective power. These are only suggestions, as little is known concerning fundamental factors influencing permeability through living membranes.

The extremely large doses, i. e. 500,000 to 1,000,000 units, which have been used by others were not tried because of expense. It has been disappointing that our best results are greatly inferior to some reported by others, notably Burke and his associates.¹³ We are at a loss to explain this discrepancy.

Excellent results were produced in gonorrhea by the best preparations. Oral therapy for this disease may be criticized as being subject to unreliability on the part of the patient and as masking coincident syphilis by inadequate treatment. Gonorrhea was chosen, however, as large numbers of patients were available, relatively exact diagnosis and proof of cure may be established, the organism was highly susceptible, and it was a disease in which inadequate treatment would not immediately threaten life. With the ordinarily effective total dose of one-half million units, expense (about \$5 at present) ceases to be an important factor in limiting oral treatment of gonorrhea. However, the ultimate desirability of oral medication in gonorrhea remains undetermined.

CONCLUSIONS

1. Extensive trials of the administration of penicillin by mouth, with various enteric coatings and adjuvants to protect the penicillin or promote its absorption, resulted in the following useful combinations: mixtures of penicillin with triisopropanolamine, trisodium citrate or sodium carbonate enclosed in a res-in-cellulose plastic enteric coating.

2. When the dose of penicillin was 50,000 units, administered every two hours for ten doses, these

superior combinations produced penicillin blood concentrations of from 0.02 to 0.05 unit per cubic centimeter.

3. Fifty-three cases of acute gonorrhea were treated with several of the most promising combinations, with cures in 38, or 72 per cent.

4. Treatment of infections with highly susceptible bacteria by orally administered penicillin appears to be feasible.

TOURNIQUET PARALYSIS

ANALYSIS OF THREE CASES OF SURGICALLY
PROVED PERIPHERAL NERVE DAMAGE FOLLOWING
USE OF RUBBER TOURNIQUET

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Paralysis of a peripheral nerve following the use of a rubber tourniquet for surgical hemostasis is not an infrequent occurrence. A review of the literature, however, reveals few reports of such lesions. This is probably due to the fact that the vast majority of such cases show only an evanescent paralysis with involvement lasting a few days or weeks, followed by complete remission of symptoms. This deduction is verified by our own experience and that of the numerous surgeons with wide experience in the use of the tourniquet.

The first available report is that of Montes,¹ who in 1888 described permanent peripheral nerve paralysis as a result of the use of a tourniquet. The exact length of time of follow-up is not known. The next item in the literature is a case report by J. J. Putnam² in 1888 before the Boston Society for Medical Improvement. He described complete paralysis of the nerves of the arm following the application of a rubber tourniquet during a surgical procedure on the hand. The patient had a reaction of degeneration in the involved muscles. It was Putnam's opinion that "not only was degeneration present at the site of the lesion but that it traveled distally along the nerve to the involved muscle, inciting a subacute inflammation in the muscle." Further details are not reported by this author.

The largest series of similar cases is that collected by Eckhoff,³ who described 14 cases of tourniquet paralysis with varying degrees of permanence and severity, none of which were surgically explored. None of this writer's cases were permanently paralyzed. Ten of his cases were cured in three months, 3 cases were cured in five months and 1 case improved in six months. All received intensive physical therapy. In that writer's experience the radial nerve was the most frequently involved, although in a fair proportion of cases the median or ulnar nerve was involved. An interesting observation in some of his cases was the return of voluntary power before the return of faradic current response. Robb⁴ reported his findings in tourniquet paralysis of all the main nerve trunks of the arm. Treatment consisted of intensive physical therapy, which was followed in three months by complete

recovery. This author makes the statement that, in general, recovery takes place in from one to six months.

Burman⁵ in 1940 was the first to report a case of tourniquet paralysis in which the involved nerve (sciatic) was explored surgically. As in 1 of our cases the tourniquet was applied during the course of a meniscectomy of the knee. Exploration at the level of the tourniquet revealed that the "medial portion of the sciatic nerve was flattened and compressed for a distance of 1 inch, and the lateral nerve was covered by a small organizing fibrinous hemorrhagic exudate." Neurolysis was performed, and in nine months complete recovery had taken place.

It becomes evident, therefore, that few cases of permanent paralysis secondary to the use of a tourniquet have been reported in the literature. All of Eckhoff's cases were cured in a few months, as was also the case of Robb. Burman's case improved in nine months after a neurolysis had been performed. Specific details regarding Montes' and Putnam's patients are not available, but it is to be presumed that they were permanently paralyzed. Thus, of the 18 cases noted in the literature, 16 were not permanent, the majority being less than three months, and 2 cases were presumably permanent.

One of us (I. J. S.) had under his care during the last eighteen months 970 peripheral nerve injuries, almost all of which were battle casualties. Among this group there were 3 cases of permanent paralyses secondary to the use of the tourniquet. In view of the more or less general use of a tourniquet to produce an avascular surgical field and the relative infrequency of this complication, these cases are presented for analysis.

REPORT OF CASES

CASE 1.—A sergeant in the infantry, aged 38, with no significant episodes in his past history, was struck in the left midforearm by land mine fragments on Nov. 6, 1943. A compound comminuted fracture of the radius resulted, but there was no evidence of paralysis. On November 7 the wound was debrided, the operation being performed with a tourniquet of rubber tubing applied at about the junction of the lower and middle thirds of the arm. The duration of the operation is not definitely known, but the patient believes that it took one and one-half hours. A cast was immediately applied. It was not until December 15, on removal of the cast, that a complete wrist drop was noted. The wounds and fracture healed well, but there was no evidence of improvement in the nerve deficit.

Physical examination revealed well healed wounds on the dorsal and volar surfaces of the middle third of the forearm, with complete paralysis of the extensor muscles of the wrist, fingers and thumb. There was also complete absence of brachioradialis muscle function, pronounced weakness of supination, paralysis of the abductors of the thumb and a small patch of diminished sensation over the dorsum of the first interosseous space.

Although the wound was in the midforearm, tourniquet paralysis was suspected because the brachioradialis and supinator paralysis placed the level of the lesion above the elbow. Accordingly, on April 26, 1944 the radial nerve was explored in the arm from the point where it pierced the lateral intermuscular septum to its position between the tendon of the biceps and the belly of the brachialis muscle. On thus exposing the nerve in the lower third of the arm over a distance of 6 cm. (fig. 1) the radial nerve was noted to be less than half its usual diameter. Along this area of diminished diameter, at irregular intervals, were six firm nodules occupying almost the entire thickness of the nerve. Each nodule was about the

5. Burman, M. S.: Tourniquet Paralysis of the Sciatic Nerve, *Bull. Hosp. Joint Dis.* 1: 14, 1940.

From the Neurosurgical Section (Major Spiegel) and the Orthopedic Section (Lieutenant Colonel Lewin) of the Mayo General Hospital, Galesburg, Ill.

1. Montes de Ota, F.: Parálisis permanente producida por la isquemia quirúrgica, *Independ. med. México* 1: 35, 1880.

2. Putnam, J. J.: Peripheral Paralysis Following Use of a Rubber Tourniquet, *Boston M. & S. J.* 119: 107, 1883.

3. Eckhoff, Nils L.: Tourniquet Paralysis, *Lancet* 2: 343, 1931.

4. Robb, Douglas: A Case of Tourniquet Paralysis, *New Zealand M. J.* 32: 203, 1933.

size of a split pea and had the characteristic consistency of a neuroma. Electrical stimulation above the most proximal nodule yielded no muscular response, and saline solution when injected into the neuroma would not flow above or below the pathologic area. In view of the long area of nerve that was damaged, resection and suture of this area was considered unwise and

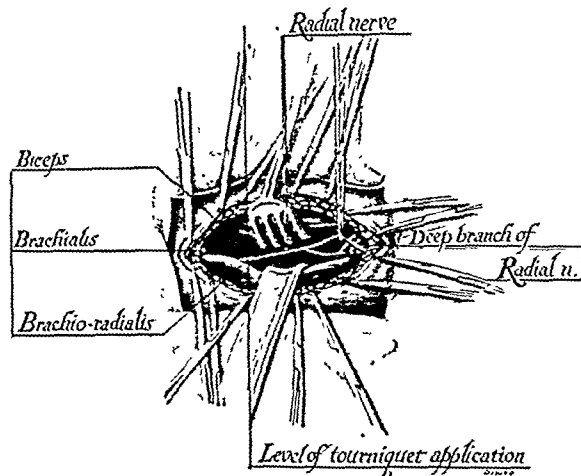


Fig. 1.—Surgical exposure of the radial nerve in case 1, revealing the multiple neuromas in the nerve below the area of tourniquet application.

the wound was closed. It healed well. Because of the findings at operation, it was decided that the lesion was irrevocable and tendon transplantation was performed two months later. The details of the last operation and subsequent course are not available to us.

CASE 2.—A private in the armed forces, aged 25, with no abnormalities in his past history, began early in 1943 to experience pain in the left knee with tenderness anterolaterally over the knee joint. He was found to have the classic findings of a ruptured meniscus. On Jan. 26, 1944 in an overseas hospital meniscectomy was performed on the left knee. The operation lasted approximately one and one-half hours and during the entire operation a tourniquet (probably rubber tubing) remained in force high up on the middle third of the thigh. Immediately following operation a full length leg and thigh cast was applied to a point just above the ankle. Because of some discomfort at the ankle, the cast was bivalved. Immediately on removal of the cast the patient noted a complete foot drop with numbness on the dorsum of the foot, particularly on the adjacent sides of the great and adjoining toes, and weakness of plantar flexion of the ankle. For three months following this there was some improvement in function of plantar flexion at the ankle joint, but for about three months prior to admission to the service of one of us (I. J. S.) no noticeable improvement took place.

Physical examination on admission to the hospital on June 16, 1944 revealed a well healed surgical incision 3 inches long on the medial side of the left knee. There was complete foot drop on the left side, with paralysis of the dorsiflexors of the toes and evertors of the foot. Plantar flexion and inversion were normal. Hyperesthesia and hypalgesia were present on the lateral aspect of the leg and the dorsum of the foot and toes.

On July 6 the left sciatic nerve was exposed from the gluteal fold to the head of the fibula (fig. 2). In the middle third of the thigh the nerve was seen to be surrounded by scar tissue and was remarkably thinned out, especially its common peroneal component. Over a distance of 4 inches the common peroneal portion of the sciatic nerve was firm, hard and narrowed to one fourth of its normal diameter. Saline solution would not flow above or below this area when injected, and there was no response to electrical stimulation. The tibial portion of the nerve appeared quite normal. The common peroneal nerve at the head of the fibula showed no evidence of injury from the cast. Since the defect was too large to bridge, the scar

tissue was cleared away and the wound closed. There was no postoperative change in symptoms. The patient was followed for four and one-half months postoperatively with no change in symptoms. Following this he was discharged from the service and further check-up is therefore not available.

CASE 3.—A sergeant in the Tank Corps, aged 40, slipped during a bombing attack on his ship and fell three decks to the hold of the ship, sustaining a comminuted fracture of the head of the right radius. There was no evidence of involvement of the radial nerve. On Nov. 26, 1943 he was operated on because of the displacement of the head of the radius. At operation pronounced comminution of the head of the radius was seen, and one section was displaced beyond the confines of the orbicular ligament and the capsule of the joint. The head of the radius was excised, but some fragments still remained. Following operation there was no evidence of radial nerve involvement. However, since limitation of movement at the elbow joint persisted, on June 6, under intravenous pentothal sodium anesthesia, the joint was reexplored, a loose body removed and the elbow manipulated to overcome some adhesions. A tourniquet was applied at the beginning of the operation and remained on for approximately fifty-five minutes. Immediately following the operation a complete wrist drop was present and has persisted to the present time.

On September 3 he was admitted to the Mayo General Hospital and examination revealed a well healed scar on the lateral aspect of the right elbow joint. He had slight tenderness over the normal area of the head of the radius. There was symmetrical atrophy of the entire right upper extremity, most pronounced over the dorsum of the forearm. About 20 per cent loss of power of the forearm supinators and a similar weakness in the brachioradialis muscle were present. There was about a 30 per cent loss of power in the extensors of the wrist, along with complete paralysis of the extensors of the fingers and thumb. Active abduction of the thumb was lost. An area

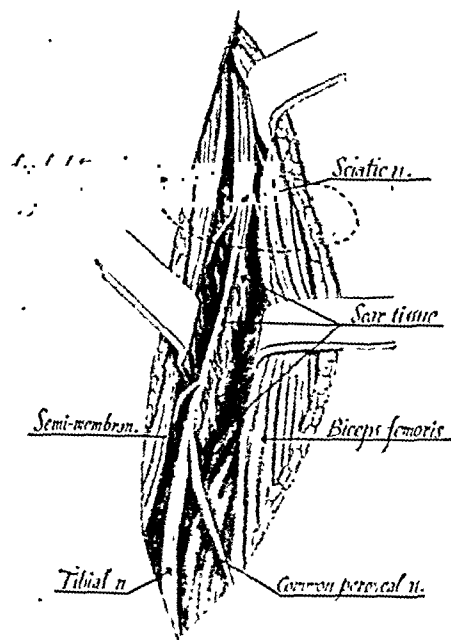


Fig. 2.—Surgical exposure of the sciatic nerve in case 2, revealing thinning of the nerve below the level of tourniquet application, most severe in the common peroneal portion. A good deal of scar tissue is evident around the nerve.

of hypalgesia was noted over the dorsum of the first interosseous space, the thumb and the proximal phalanx of the index finger. Hypalgesia was also noted over the dorsolateral aspect of the forearm.

There was an area of brown discoloration around the lower third of the arm, where, apparently, the tourniquet had been applied.

October 13 the radial nerve was exposed by a lateral incision extending from 1 inch above the area where the tourniquet had been applied to the head of the radius. At points 0.5 cm. above and 1 cm. below the area of application of the tourniquet two firm nodules, each about the size of a split pea, could be palpated (fig. 3). They occupied about three fifths of the diameter of the nerve. Below these neuromas the radial nerve was narrowed to about one half its usual size in that location. The nerve was traced to its point of division and beyond, but no evidence of injury to the nerves at the site of previous operation was found. Small bands of adhesions surrounding the neuromas were separated. Saline solution was injected above and below the neuromas and flowed beyond each, of these into the uninvolved portion of the nerve. Since the patient still had some brachioradialis, supinator and extensor carpi muscle function, resection of the neuromas was considered unwise. The cutaneous branch of the musculocutaneous nerve was visualized but appeared normal. The morning following the operation the patient noted increased power in the brachioradialis and extensors of the wrist. He noted also improvement in sensation over the dorsum of the first interosseous space, the dorsum of the first phalanx of the index fingers and the dorsal surfaces of the thumb. Following this no further improvement was noted in the patient's symptoms over a period of four and

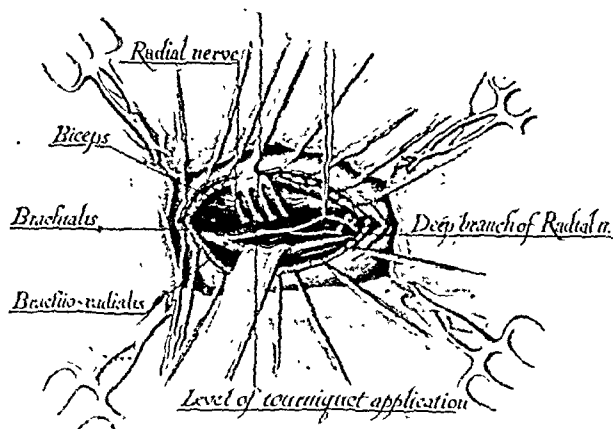


Fig. 3.—Surgical exposure of the radial nerve in case 3, revealing the two neuromas present in the nerve just at the site of tourniquet application. Note the thinning of the nerve below the neuromas.

one-half months. Since he did not desire tendon transplant, he was discharged from the service and has not since been heard from.

COMMENT

Allen,⁶ from a series of experiments, comes to the conclusion that one of the main causes of death of a nerve following the use of a tourniquet is necrosis of nerve fibers from direct pressure at the tourniquet site. Another important factor, according to Allen, is local asphyxia, and experiments to bear this out are mentioned. In these experiments the factor of local tourniquet pressure was excluded and organic destruction of the nerve fiber still took place after from one to several hours following ligation of the main vessels of the limb. According to him, narrow rubber bands or tubes are less harmful and painful than broad tourniquets. His reasons are logical—a wide tourniquet at the same pressure as a narrow tourniquet is pressing on more surface than the narrow tourniquet and therefore can do more harm. In actual practice, however, one of us (P. L.) has noted that it is less harmful to use a broad tourniquet, the explanation being that a force applied over a greater surface is less harmful than an equal force applied over a smaller surface.

6. Allen, F. M.: The Tourniquet and Local Asphyxia, *Am. J. Surg.* 41: 192, 1938.

Denny-Brown and Brenner⁷ believe that the effect of pressure on a nerve is entirely an ischemic phenomenon. The effect of pressure on conduction is graded by these authors as follows:

1. Nil.
2. Paralysis with rapid complete recovery on release of pressure.
3. Paralysis with delayed recovery without degeneration.
4. Complete anatomic lesion with degeneration.

In their experiments on the effect of pressure on conduction in peripheral nerves, Bentley and Schlapp⁸ postulate a critical value of 130 mm. of mercury applied over a period of two to three hours for the production of nerve block. They state also that the time taken for the establishment of nerve block by direct pressure is much longer than that observed in ischemia. These authors stress the fact that pressure block has different characteristics from block due to ischemia and that the time taken for the establishment of nerve block by direct pressure is much longer than that observed in ischemia.

Biopsies of the nerve lesions seen in the 3 cases reported here were, of course, not taken because nerve suture was not surgically feasible, and possible return of function would have been jeopardized. The exact nature of the pathologic involvement is therefore not known. There was no question, however, about the presence of intraneural scar and neuromas in all the cases by palpation of the lesion. The only apparent causes for this involvement would therefore appear to be either pressure necrosis at the site of tourniquet application with fibrosis and neuroma formation or ischemia below the site of application of the tourniquet, death of the ischemic portion of the nerve, fibrosis and neuroma formation. Whatever the cause, however, the end result in all 3 cases was fibrosis and neuroma formation.

The radial nerve is more frequently involved in tourniquet paralysis because of its long course in direct contact with the humerus, rendering it particularly vulnerable to compression between the bone and the tourniquet. The sciatic nerve is, of course, less vulnerable but still is not immune, since there is no great abundance of muscle present to act as a cushion between it and the femur.

The median, ulnar and femoral nerves, by virtue of their more superficial positions and the heavy muscular pads between them and bone (at the usual tourniquet sites), are less frequently involved.

BRIEF COMMENT ON CONSTRICTORS

A bloodless field is vital in certain surgical procedures on tendons, bones and joints. It aids materially in accomplishing precision technic with the greatest speed, minimal loss of blood and minimal danger of infection, besides substantially reducing the possibility of fat embolism in operations on the long bones.

The main type of constrictors are:

1. The Martin bandage, a pure para-elastic rubber bandage obtainable in sizes ranging from 2½ inches by 9 feet to 3 inches by 12 feet.
2. The Esmarch band, a flat piece of heavy rubber about 1 inch wide and ¼ inch thick, with a metal chain at one end and a metal hook at the other.
3. The Campbell-Boyd pneumatic apparatus.
4. Rubber tubing and a clamp.

7. Denny-Brown, D., and Brenner, C.: Paralysis of Nerve Induced by Direct Pressure and by Tourniquet, *Arch. Neurol. & Psychiat.* 1: 51 (Jan.) 1944.

8. Bentley, F. H., and Schlapp, W.: Experiments on the Blood Supply of Nerves, *J. Physiol.* 102: 62, 1943.

It is recommended that any type of constrictor other than the Campbell-Boyd type be applied over a towel. The limb should be rendered bloodless by first elevating it for two minutes. A Martin bandage is then applied with each layer covering one edge of the preceding layer, extending from the tips of the toes more than half way up the thigh in the lower extremity and the arm in the upper extremity. Following this procedure, the constrictor is applied. The constrictor should be removed within an hour if feasible. In longer operations it is advisable to release the constrictor for a few moments and then renew the constricting force. In tendon procedures on the forearm and hand it is recommended that the tourniquet be released every forty-five minutes. Following the final removal of the tourniquet, the limb should be gently massaged in order that the blood vessels whose walls have been compressed may resume their patency.

It is our opinion that the use of the Campbell-Boyd pneumatic constrictor is attended with the least danger to vessels and nerves. It can be inflated and deflated without danger to sterile drapes and it allows for an even pressure exactly determined and distributed over a large area. Its manufacture is easy and has been adequately described.⁹ For an adult of average size, 15 pounds of pressure for the lower extremity and 10 pounds for the upper extremity are the maximum. The pressure for children is proportionately lower.

CONCLUSIONS

1. Severe damage of peripheral nerves can occur as a result of application of a rubber tourniquet for surgical ischemia.

2. Factors involved in the production of the paralysis are (a) pressure necrosis at the site of tourniquet application, with fibrosis and production of neuromas, (b) ischemia below the site of application of the tourniquet with death of the ischemic portion of the nerve, fibrosis and production of a neuroma in continuity, and (c) a combination of the foregoing two situations.

3. The radial and sciatic nerves are the most vulnerable to tourniquet paralysis.

4. Every case of tourniquet paralysis of a peripheral nerve immediately on its discovery should receive intensive physical therapy over a period of eight to twelve weeks. If, at the end of this time, no appreciable return of function is evident, surgical exploration of the involved nerve should be performed and a neurolysis or even neurorrhaphy (if feasible) should be attempted.

5. The Campbell-Boyd pneumatic constrictor appears to be the most efficient and least harmful of the constrictors.

9. Campbell, W. D. *Operative Orthopedics*, St. Louis, C. V. Mosby Company, 1939.

Psychologic Experiments with Alcohol.—The most important conclusion that may be drawn from psychological experiments with alcohol—and these include many experiments which have not been described here—is that the various effects studied showed that alcohol is a depressant, not a stimulant. It affects first the higher brain centers which control the voluntary behavior and emotions, while the lower centers which control such vital functions as breathing are affected only in severe intoxication. Briefly, alcohol acts in the same way as the well known anesthetics. Since it is an anesthetic, one can correspondingly predict its effect in small and large quantities on efficiency on the one side, and on sedation and relaxation on the other side.—Jellinek, E. M., in *Alcohol, Science and Society*, New Haven, Quarterly Journal of Studies on Alcohol, 1935.

THE LIMITATIONS OF PENICILLIN IN TREATING EMPYEMA

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Recently several papers have appeared which have emphasized the ability of penicillin to prevent the development of empyema. In the issue of *THE JOURNAL* of June 23 three papers appeared by Healy and Katz, by Rudensky, Sprong and Woods and by Hirshfeld, Buggs, Abbott and Pilling which stressed the value of penicillin in this respect.

My purpose in this paper is to point out not only the value but also the limitations of penicillin in the prophylactic treatment of empyema and stress the need for surgical drainage of established empyema. Penicillin has undoubtedly proved of great value in preventing empyema when it is administered in large quantities during the incipient stages, before frank pus has formed. This is especially true of postpneumonic pleural effusions, particularly of the pneumococcal variety, as indicated by the several favorable reports in the literature. Tillet, Chambier and McCormack¹ report 8 pneumococcal infections of the pleural space in 7 of which surgical drainage was avoided, although 1 required a thoracotomy and one was left with an unexpandable lung. Bennett and Parkes² report 4 cases. One sterile pleural effusion associated with a staphylococcal pneumonia was thought to represent an aborted empyema. Two pleural effusions containing streptococci were sterilized and resorbed before becoming established empyemas, and 1 staphylococcal empyema in a baby was followed for ten days after its apparent disappearance. Butler, Perry and Valentine³ report sterilization of the pleural fluid in 17 cases within two to five days of penicillin therapy. There was a recurrence of the empyemas in 28 per cent of the cases within about sixteen to eighteen days, or about one week after the penicillin was stopped.

Penicillin is also of value in cases of potential contamination of the pleural space following surgical pulmonary resection and traumatic injuries of the lung. The proper evaluation of penicillin in these cases is somewhat difficult, owing to the long recognized tendency toward a spontaneous cure in many instances.

The spontaneous clearing of up to 25 per cent of postpneumonic pleural effusions was noted in surgical textbooks before penicillin or even the sulfonamides were available. This tendency toward a spontaneous cure was especially prevalent in children and was increased by aspirations of the pleural fluid. The tendency toward spontaneous recovery without infection in the majority of cases of hemothorax resulting from stab and gunshot wounds in civilian practice is well recognized. The infections are definitely decreased in these cases by penicillin, sulfonamides, debridement and thoracenteses.

The experiences of chest surgeons over a period of years has shown that the great majority of pneumonectomy patients escape empyemas, despite potential contamination of the pleural cavity occurring as the result of cutting across the infected bronchus. Admittedly a few empyemas do occur in any large series of cases of potential infections of the pleural space, whether due

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1. Tillet, W. S., Chambier, M. J., and McCormack, J. F. *Bull. New York Acad. Med.* 20: 342, 1944.

2. Bennett, J. L., and Parkes, T. L. *et al.* 1944.

3. Butler, L. C., B. Perry, K., and Valentine, J. *Bull. M. J.* 2: 171, 1944.

to trauma or to surgery of the lung. The administration of large quantities of penicillin to all these patients during the incipient stages of their infections is to be commended in order to reduce to a minimum the incidence of empyema.

Great care has been exercised in selecting the following 38 cases of empyema reported out of more than 150 carefully recorded cases of penicillin treatment of various types of pulmonary infection. No patients were included who had not received penicillin during the formative stages of the empyema before drainage was required. Several patients who had been discharged from other hospitals as cured by small doses of penicillin were omitted because of the inadequate amount of penicillin administered. All of the many cases in which penicillin and drainage were used simultaneously were omitted. No operative cases were included in which a bronchopleural fistula was suspected

to etiology is as follows: post lobectomy 17, or 48.5 per cent; post pneumonectomy 10, or 28.5 per cent; post pneumonic 8, or 23 per cent. In all but 3 of the lobectomies intrapleural penicillin was given in an average dose of 350,000 units over a period of six days. In all but 1 of the pneumonectomies intrapleural penicillin was administered in the same dosage. In each of the lobectomies and pneumonectomies an average of 1,446,000 units of penicillin was administered over an average period of fifteen days. An average of thirty days occurred between the onset of the disease and the drainage of the empyema. This is a considerably longer time than usually elapses before the drainage of most of our empyemas, especially those following a pulmonary resection, in which the empyema ordinarily develops and requires drainage within less than two weeks after the operation. Drainage was necessitated in a number of these empyemas, especially the postpneumonic ones, by

Summary of Empyemas Treated with Penicillin

No.	Name	Cause	Days of Intrapleural Penicillin	Amount of Intrapleural Penicillin	Total Penicillin in Million Units	Days of Penicillin	Days After Cause Before Drainage	Days After Penicillin Stopped Before Drainage	Cured Without Drainage After Positive Culture	Culture of Empyema	Sulfonamide Drugs
1	W. W.	Pneumonectomy	7	0.4	1.95	7	21	8	Yes	B. coli	....
2	G. W.	Pneumonectomy	10	0.55	1.92	28	..	..	Yes	Anaerobic rod	....
3	N. V.	Pneumonectomy	6	0.35	1.55	12	35	23	..	0	....
4	L. S.	Pneumonectomy	12	0.65	1.83	16	..	..	Yes	Staphylococci	....
5	E. S.	Pneumonectomy	0	0	0.425	9	2	0	....	Streptococci, staphylococci	....
6	R. R.	Pneumonectomy	10	0.37	0.37	10	12	2	....	B. pyocyaneus	....
7	G. A.	Pneumonectomy	6	0.55	0.55	6	10	4	....	Staphylococci, pneumococci	....
8	D. Me.	Pneumonectomy	6	0.35	1.64	14	37	23	....	B. pyocyaneus	....
9	M. O.	Lobectomy	7	0.45	1.89	15	26	11	....	Staphylococci	....
10	M. O'H.	Lobectomy	6	0.35	2.18	9	10	1	....	B. pyocyaneus	....
11	W. L.	Lobectomy	6	0.35	2.11	15	22	7	....	Staphylococci, streptococci	....
12	C. L.	Lobectomy	6	0.35	2.11	14	20	6	....	.....	....
13	J. K.	Lobectomy	6	0.35	2.2	21	12	..	....	B. pyocyaneus	....
14	E. D.	Lobectomy	7	0.4	1.6	13	28	15	....	.....	....
15	R. C.	Lobectomy	..	....	1.5	12	21	9	....	Streptococci	....
16	O. H.	Lobectomy	6	0.35	1.7	14	4	..	....	.....	....
17	C. H.	Lobectomy	6	0.35	1.8	14	28	14	....	Staphylococci	....
18	G. S.	Pneumonectomy	6	0.35	2.04	20	10	1	....	B. pyocyaneus	....
19	R. T.	Pneumonectomy	6	0.35	1.6	17	20	9	....	Streptococci, staphylococci	....
20	H. G.	Pneumonia	..	....	1.2	36	42	7	....	Staphylococci	Yes
21	R. S.	Pneumonia	2	0.08	4.32	18	23	..	....	Staphylococci	Yes
22	M. B.	Lobectomy	1	0.1	2.58	21	17	1	....	.....	Yes
23	W. H.	Pneumonia	7	0.4	2.68	11	22	..	....	Staphylococci	....
24	G. L.	Pneumonia	..	....	1.9	30	60	4	....	Staphylococci	....
25	P. P.	Pneumonia	..	....	4.0	60	240	30	....	Staphylococci	Yes
26	M. P.	Pneumonia	..	....	0.62	7	30	6	....	Staphylococci	Yes
27	H. S.	Lobectomy	7	0.4	2.32	21	28	10	....	Staphylococci	....
28	L. S.	Lobectomy	1	0.1	2.41	15	12	..	....	B. pyocyaneus	....
29	M. B.	Lobectomy	1	0.1	2.58	21	12	..	....	Staphylococci	....
30	J. M.	Pneumonia	..	....	1.2	25	34	..	....	Staphylococci	....
31	V. J.	Pneumonia	..	....	0.64	5	17	..	....	B. pyocyaneus, staphylococci	....
32	H. St.	Lobectomy	7	0.4	2.21	16	27	12	....	Staphylococci	....
33	M. C.	Lobectomy	..	....	1.68	13	17	..	....	Staphylococci	....
34	I. H.	Lobectomy	..	....	1.5	13	16	1	....	Staphylococci, streptococci	....
35	R. S.	Lobectomy	7	0.4	2.5	26	35	13	....	.....	....

and drainage of the pleural cavity was maintained for physiologic reasons following the pulmonary resection. These reported cases consist of postpneumonic empyemas and empyemas following lobectomies and pneumonectomies. Penicillin therapy was instituted at the time of operation or several days preoperatively in all of the cases of pulmonary resection.

The accompanying table represents all of the empyemas which developed over a fifteen month period while the patients were receiving penicillin before drainage was instituted. In 2 of the 35 cases reported, 5.4 per cent, recovery occurred without the development of an empyema even after positive pleural fluid cultures were obtained early in the course of the penicillin therapy. Definite empyemas requiring drainage developed while the patient was still receiving penicillin in 17, or 48.5 per cent, of the 35 cases. An average period of eleven days was required after the penicillin was discontinued before the empyemas became established as a clinical entity requiring drainage in the remaining 18, or 51.5 per cent. The distribution of the empyemas in relation

to etiology is as follows: post lobectomy 17, or 48.5 per cent; post pneumonectomy 10, or 28.5 per cent; post pneumonic 8, or 23 per cent. In all but 3 of the lobectomies intrapleural penicillin was given in an average dose of 350,000 units over a period of six days. In all but 1 of the pneumonectomies intrapleural penicillin was administered in the same dosage. In each of the lobectomies and pneumonectomies an average of 1,446,000 units of penicillin was administered over an average period of fifteen days. An average of thirty days occurred between the onset of the disease and the drainage of the empyema. This is a considerably longer time than usually elapses before the drainage of most of our empyemas, especially those following a pulmonary resection, in which the empyema ordinarily develops and requires drainage within less than two weeks after the operation. Drainage was necessitated in a number of these empyemas, especially the postpneumonic ones, by

the patient's continued temperature elevation and the finding of thick pus in the pleural cavity although no organisms could be cultured from the pleural fluid. All of these cultures were incubated for eight days on the advice of Dr. Phillip Varney, who noted small atypical colonies forming in many cultures on about the sixth or seventh day of incubation, after the inhibitory effect of the penicillin had become somewhat dissipated. The colonies would resume their normal growth after several transplants.

The pus was sterile on culture in 8 cases, or 23 per cent, although the persistent symptoms and temperature elevation required drainage.

Staphylococci were predominating organisms, being present in 18, or 51.5 per cent, of the empyemas.

Bacillus pyocyaneus and streptococci both occurred in 5 cases and pneumococci in only 2 cases. In 5 of the 8 postpneumonic empyemas sulfonamides also had been administered in addition to the penicillin, but in none of the pulmonary resections had any of the sulfonamides been given.

COMMENT

The administration of large quantities of penicillin as a prophylactic measure seems advantageous for patients with potential pleural infections whether due to pneumonia or to traumatic or surgical contamination of the pleural space. The period of greatest value in the use of penicillin appears to be during the incipient stages of the infection, preferably even before a pleural effusion has developed. It is also valuable during the developmental stages of a pleural effusion when the fluid remains thin and clear with relatively few pus cells and a sterile culture. The formation of fluid and positive cultures should decrease rapidly within a few days if the penicillin treatment is going to be successful in preventing an empyema. The best results seem to be obtained by a combination of parenteral and intrapleural penicillin, with emphasis placed on the former route. Intrapleural penicillin alone has not proved adequate in our cases. The use of penicillin to avoid drainage of a collection of thick intrapleural pus appears to represent poor judgment and undue optimism. Admittedly, the pus can be rendered permanently sterile in a certain number of cases with tremendous doses of penicillin carried out over a long period of time at great expense to the patient for both penicillin and hospitalization. The most discouraging part of such treatment is the tendency for an unsatisfactory result, even after all of that time, effort and money have been expended.

A trial of two or three weeks with daily penicillin dosages of over 100,000 units plus intrapleural penicillin injections in the presence of a pleural effusion seems sufficient in most of these cases of potential empyema. By the end of this time either the infection should be completely cured or the empyema drained in case signs and symptoms of intrapleural infection persist. Over a week's hospitalization will still be required after the penicillin has been stopped in order to discover a latent empyema whose symptoms have been masked by the penicillin action. A recurrence rate of 28 per cent was noted in the 18 cases reported by Butler, Perry and Valentine. Fifty-three per cent of the cases reported here represent recurrences one or two weeks after the penicillin was stopped.

A certain percentage of patients with potential pleural infection develop empyema, despite large amounts of penicillin administered during the incipient stages of the infection. Some of these patients remain afebrile and asymptomatic, with clear sterile pleural fluid until a little over a week after the penicillin has been stopped. Then suddenly all of the signs and symptoms of an acute empyema develop, which respond readily to the usual surgical drainage. Some other patients, despite the penicillin, develop all the signs and symptoms of an acute or chronic empyema except a positive pleural fluid culture. They may have a continued high or low grade temperature elevation accompanied by weakness, weight loss and the formation of thick turbid pleural fluid containing numerous pus cells. These patients likewise respond to surgical drainage of their "sterile" empyemas.

A third group of sterilized, dry, nontoxic empyema cavities following the administration of large quantities of penicillin over long periods of time represents one of the most difficult problems of all. One has a chronic burned out empyema cavity with thick fibrous walls which prevent the reexpansion or function of the lung, diaphragm or chest wall for the remainder of the patient's life. This clearly simulates the unexpandable lung so familiar to those dealing with tuberculous pleural effusions accompanying artificial pneumothorax. Pileher,

Perry and Wright⁴ and Valentine⁵ all mention the obliteration of the sterilized cavity as one of the greatest problems in the use of penicillin for treatment of empyemas.

The use of a temporary thoracotomy drainage with irrigation of the cavity is mentioned as a possible method of eliminating the pus and fibrin clots. Tillett, Chambier and McCormack¹ report a case of chronic pneumothorax following penicillin therapy, as did Blades, Hamilton and Dugan.³ Keefer and his associates⁶ state in the report of the National Research Council that "when pus in an empyema cavity is sterilized by penicillin it often becomes so thick that a thoracotomy is necessary to furnish adequate drainage."

Kent and Sager⁷ report that chemotherapeutic measures should not delay surgical drainage of empyemas. They also substantiate our experience that catheter drainage is inadequate, as the result of the obstruction of the small tubes by fibrin clots resulting from the use of penicillin. Craig and his associates⁸ at the National Naval Medical Center mention the necessity for surgical drainage to cure finally 3 empyemas after intensive parenteral and intrapleural penicillin therapy.

The surgical findings on thoracotomy in cases of pleural infection treated for several weeks with penicillin would seem to indicate that even sterile, nontoxic empyemas should be treated with surgical drainage, if for only physiologic reasons. The pleural surfaces, especially the parietal pleura, are so much thickened after a few weeks of penicillin "sterilization" that they resemble the walls of a chronic empyema of two or three years' duration. Huge lumps of fibrin fill the cavities and frequently require the enlargement of the thoracotomy openings for their removal with large forceps. A closed intercostal catheter drainage would be entirely inadequate for the cleansing of such empyema cavities. A period of two or three months is frequently required for the lung to reexpand and obliterate the cavity, owing to the rigidity of the walls caused by fibrin deposits. Blades³ reports 2 cases in which reexpansion of the lung was obtained only by surgical decortication of the wall of the cavity in his series of 24 cases treated by penicillin, in which only 3 escaped surgery.

I have found the same extensive fibrin deposits on several occasions in patients with purulent pericarditis who have been treated for two or three months with penicillin. These patients finally required a pericardiotomy for relief of their symptoms of congestive heart failure on a basis of cardiac tamponade or constructive pericarditis. Huge masses of fibrin, which sometimes showed organisms on culture, were found in the pericardial sac.

It does not seem practical to carry on penicillin therapy over a period of two to three months in an effort to cure an established empyema without drainage. Expense to the patient for both penicillin and hospital care is excessive, especially when a thoracotomy will probably be needed eventually to cure the empyema in the majority of the cases and to restore the function of the lung in the remainder. A much wiser course would be to make vigorous attempts to prevent the empyema during the first two to three weeks after the

4. Pileher, R. S.; Perry, K. M. A., and Wright, A. D.: *Proc. Roy. Soc. Med.* 37: 459, 1944.

5. Blades, B.; Hamilton, J. E., and Dugan, D. J.: *Surgery* 17: 572, 1945.

6. Keefer, C. S.; Blake, L. G.; Marshall, E. K.; Lockwood, J. S., and Wood, W. B.: *Penicillin in Treatment of Infections: Report of Five Hundred Cases*, J. A. M. A. 122: 1217 (Aug. 28) 1943.

7. Kent, E. M., and Sager, W. W.: *S. Clin. North America* 24: 1492, 1944.

8. Craig, W. M.; Thompson, G. J.; Hunter, A. M.; Barksdale, E. L.; Pfeiffer, C. C., and Wooley, P. V.: *U. S. Nav. M. Bull.* 41: 453, 1945.

onset of the infection and then stop the penicillin. In case the empyemas were not completely prevented by that length of time, an eventual drainage would probably be necessary anyway, and the sooner it is done the shorter is the period of drainage required.

My experience with penicillin in over 150 carefully evaluated cases of pulmonary infections of all types including empyemas, lung abscesses and bronchiectasis has shown that penicillin does not alter the surgical principles of treatment in any way. Pus must be drained after it is definitely established, and chronically diseased tissue which is irreversibly damaged and replaced by scar must be excised.

CONCLUSIONS

1. Potential empyemas should be treated with large doses of penicillin during their incipient period of development.

2. Patients who have been "cured" of their empyemas by penicillin should be carefully watched over at least a two weeks period for a possible recurrence.

3. Any toxic or nontoxic turbid pleural effusion containing polymorphonuclear cells following a pyogenic infection treated with penicillin should be surgically drained, even though the pus is sterile on culture.

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SKIN DIABETES: HYPERGLYCODERMIA WITHOUT HYPERGLYCEMIA

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Dermatologists have long been acquainted with the fact that the institution of a diabetic diet often brings strikingly good results in therapy resistant cases, notably of dermatitis, furunculosis and pruritus, especially in elderly, obese individuals with a purplish red complexion; and that this is true despite the fact that the fasting blood not infrequently reveals normal levels, and the urine is negative as to sugar. Several years ago, in dealing with cases of this kind, on observing a striking rise in the skin sugar levels without a similar increase in the blood sugar, I¹ suggested the term "independent cutaneous glycohistechnia"² to designate the rise in the skin sugar alone. In view of the fact that in these patients diabetic management served to bring the skin sugar levels down to normal and to clear up the skin condition and that a diet rich in carbohydrates brought on a recurrence of the disease manifestations, I assumed that this cutaneous glycohistechnia must be attributable to an underlying diabetes.

Together with Depisch and Sicher,³ and later with Lentz,⁴ I studied the problem of high skin sugar levels in 132 cases. Fasting skin and blood sugar and sugar tolerance tests were made in numerous instances and under a variety of conditions. Just as characteristic blood sugar curves indicate the presence of frank or latent diabetes, we have established the pattern of cutaneous sugar curves which is representative of the metabolic response of the skin in diabetes.

For many years I have been stressing the fact that, for physiologic and pathologic studies of the skin, a far better insight into the metabolism of this organ is afforded by chemical analysis of biopsy specimens than by studies of the blood alone, even with the aid of the sugar tolerance test. The fact that the skin can independently act as a storehouse (for sugar in this instance) is, in itself, no new discovery. For we know very well that there can be urathistechnia, cholesterohistechnia, chlorhistechnia and histohydria without any demonstrable uricemia, cholesterolemia, chloremia and hydremia, necessarily, at the time of the examination. The fact is, of course, that the blood stream merely constitutes the route by which the substances that are to be deposited are conveyed to the storage tissues; occasionally the presence of these substances can be established in the blood, on their way to or from the storage organ; at other times their presence can be demonstrated only in the storage tissues. This lends special physiologic and pathophysiologic significance to the chemistry of the tissues; i. e., to chemical analysis of biopsy skin specimens.

It is obvious that any extensive skin sugar studies must be dependent on the perfection of an extraordinarily accurate microchemical method of examining minute pieces of skin. These requirements have been met, quite satisfactorily, by the introduction of the electric punch biopsy method, which enables us to examine pieces of skin weighing no more than 30 mg. or so; moreover, the wounds occasioned by the excision of these biopsy specimens, with a 3-5 mm. punch, are so small that stitching seems superfluous, and no cosmetic damage is done.

In a recent paper⁴ the microchemical method and the technic employed were discussed in some detail; and some of the more important data on the sugar content of the skin, under physiologic and pathologic conditions, were presented.

The average sugar level of the human skin is 58 mg. per hundred grams; it is rarely higher than 65.5 mg. per hundred grams, and levels approaching 68 mg. per hundred grams are exceptional. Therefore we regard a skin sugar level of more than 68 mg. per hundred grams as pathologic. The average ratio between skin sugar and blood sugar is 61 per cent. It is only when the ratio is 70 per cent or more that we feel justified in speaking of an independent cutaneous glycohistechnia. In table 1, in the column to the left, we presented the levels of 102 patients who served as clinical control cases (contact dermatitis, psoriasis, superficial mycotic dermatitis, skin cancer and so on) and who consistently showed skin sugar levels between 55 and 68 mg. per hundred grams. On the other hand, the 30 cases in the column to the right include 20 patients with skin sugar levels between 68 and 80 mg. per hundred grams and 10 with levels exceeding 80 mg. per hundred grams. However, only 16 of these 30 cases may be properly included in the "independent cutaneous glycohistechnia" group, since these are the only cases showing a skin sugar to blood sugar ratio of more than 70 per cent (table 2).

These figures must inevitably lead to the conclusion, first of all, that a patient with a normal fasting blood sugar level can at the same time show more or less of an elevation of his fasting skin sugar level. Quite a number of these patients presented clinical skin manifestations which were completely therapy resistant until a diabetic diet low in carbohydrates was instituted, usually reinforced by a brief course of insulin treatment. The clinical improvement was regularly accompanied

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1. Urbach, E.: *Isolierte kutane Dermatosen*, Med. Klin. 29: 339, 1935.

2. Greek γλυκός = sweet, ιστός = tissue, ἔχειν = to hold.

3. Urbach, E.; Depisch, F., and Sicher, G.: *Zum Problem des isolierten hohen Hautzuckers bzw. Hautdiabetes*, Klin. Wchnschr. 16: 452, 1937.

4. Urbach, E., and Lentz, J. W.: *Carbohydrate Metabolism and Skin*, Arch. Dermat. & Syph., to be published.

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by a return to normal skin sugar levels, which, however, again rose to pathologic levels when resumption of an ordinary diet containing average amounts of carbohydrate brought on a recurrence of the clinical symptoms, such as furunculosis, eczema and pruritus. A few examples may serve to illustrate these statements:

CASE 1.—A woman aged 52 suffered from an extensive subacute dermatitis of the body, which failed to yield to many weeks of painstaking treatment in a hospital. The blood sugar toler-

TABLE 1.—Skin Sugar Levels

Skin Sugar in Mg. per 100 Gm.	Cases with Skin Sugar Below 70 Mg. per 100 Gm.	Cases with Skin Sugar Above 70 Mg. per 100 Gm.
55-68	102	0
68-80	...	20
Over 80	...	10

ance test was completely normal, as is shown in chart 1. The skin sugar tolerance test began with a slightly increased fasting level (68 mg. per hundred cubic centimeters), reached a peak (128 mg. per hundred cubic centimeters) after one hour, was still quite high (108 mg. per hundred cubic centimeters) after three hours, when the blood had begun to show hypoglycemic levels, and had not returned to its initial level by the end of the fourth hour. Institution of a low carbohydrate diet, together with small doses of insulin, brought about speedy improvement of the eczema. In conformity with the clinical improvement, the fasting skin sugar level was normal (59 mg. per hundred grams) after a week, while the blood sugar level was virtually unchanged (100 mg. per hundred cubic centimeters). Furthermore, the clinical improvement was paralleled by the response of the skin to the sugar tolerance test, during which the skin sugar now dropped to a point below its initial level by the end of the third hour (chart 2). Strict observance of the low carbohydrate diet alone caused the skin manifestations to disappear completely; however, they recurred when the diet was not strictly adhered to. This case is noteworthy because of the fact that exacerbations of the dermatitic manifestations could invariably be cleared up by means of dietary adjustments and insulin and without any kind of local treatment.

CASE 2.—A man aged 49 had been suffering for five years from severe, constantly recurrent furunculosis. During this period he had been obliged to seek hospital treatment ten times (in three different hospitals). In view of the fact that the

TABLE 2.—Skin Sugar and Blood Sugar Ratios

Skin Sugar : Blood Sugar Ratio, per Cent	Skin Sugar : Blood Sugar Ratio Below 70 per Cent		Skin Sugar : Blood Sugar Ratio Above 70 per Cent	
	Cases with Skin Sugar Below 68 Mg. per 100 Gm.	Cases with Skin Sugar Above 68 Mg. per 100 Gm.	Cases with Skin Sugar Below 68 Mg. per 100 Gm.	Cases with Skin Sugar Above 68 Mg. per 100 Gm.
Below 60	77	..	..	..
60-64	19	..	..	..
65-68	3	12	..	..
70-80	..	..	16	..
Total	102	14	16	..

patient was very obese and that his complexion was purplish red, blood sugar tolerance tests were repeatedly made; but, since these were consistently normal, it seemed impossible to make a diagnosis of diabetes. When we performed the sugar tolerance test, we also found a nearly normal curve (97, 164, 164, 139, 97 mg. per hundred cubic centimeters); an examination of the skin sugar, on the other hand, revealed the high fasting level of 81 mg. per hundred grams. We refrained from performing a complete skin sugar tolerance test in this case because of the danger of infection presented by the severe furunculosis. The patient was put on a strict diabetic diet and given 10 units of insulin three times daily. By the end of the eighth day the furuncles had vanished completely, without any

kind of local therapy. Thereupon, by way of an experiment, the patient was put on a diet free from salt but including average amounts of carbohydrates; this had to be stopped after the third day, however, because of the reappearance of furuncles. Strict adherence to a diabetic diet plus 30 units of insulin daily again served to clear up the condition, and the patient suffered no further attacks during the subsequent seven days, when he was on a very low carbohydrate diet. Then he was again put on a salt free diet of ordinary carbohydrate content, and again this had to be stopped after four days because of the reappearance of furuncles. Subsequently, throughout the months that the patient was kept under observation, a very low carbohydrate diet kept him free from all clinical manifestations without the use of insulin.

CASE 3.—A man aged 58 gave no family history of diabetes. He had been suffering from severe, recurrent furunculosis with high fever for eight years. A sugar tolerance test performed during this period had shown a normal fasting level but a blood sugar curve somewhat suggestive of the diabetic type. Subsequent institution of a suitable diet, together with insulin treatment, had brought speedy clinical improvement. During the next eighteen months the patient had lived on a diet low in carbohydrates. Then he attempted to return to a normal diet, since the sugar tolerance test with 100 Gm. of dextrose had shown a perfectly normal blood sugar curve (101, 158, 134, 98, 103 mg. per hundred cubic centimeters) and a skin sugar level of 68 mg. per hundred grams. However, a fortnight later furuncles again made their appearance, while the skin sugar

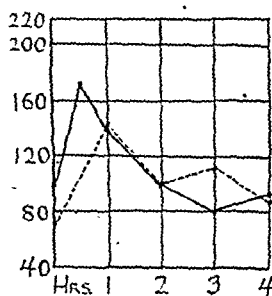


Chart 1.—Independent cutaneous glycohistechia: note normal blood sugar curve (solid line) but pathologic skin sugar curve (broken line).

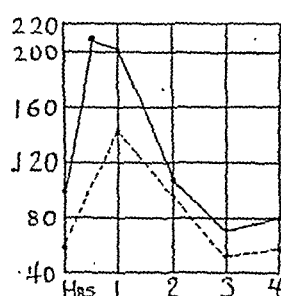


Chart 2.—Influence of low carbohydrate diet on skin sugar curve in a case of independent cutaneous glycohistechia.

level rose to 84 mg. per hundred grams, although the fasting blood sugar level (104 mg. per hundred cubic centimeters) was normal. On a diabetic diet the skin manifestations once more showed speedy improvement, while the skin sugar level dropped to 72 mg. per hundred grams and the blood sugar level of 101 mg. per hundred cubic centimeters remained virtually unchanged. During the many months this patient was kept under observation he too remained completely free from all clinical manifestations on a low carbohydrate diet alone.

The triad of (1) a high skin sugar level, (2) a strikingly good and long lasting tolerance of relatively large quantities of insulin in association with low carbohydrate diet and (3) the clinically beneficial effect of the latter on furunculosis (or, conversely, the recurrence of abscess formation on a high carbohydrate diet) would certainly seem to point to an underlying diabetes in these 2 cases of chronic furunculosis.

CASE 4.—A man aged 74 presented the typical picture of diabetic balanitis. This diagnosis was rejected, however, because the blood sugar tolerance curve was perfectly normal; investigation of the skin sugar, on the other hand, disclosed the presence of an independent cutaneous glycohistechia (the fasting skin sugar level was 80 mg. per hundred grams). A diabetic diet plus insulin promptly brought favorable results.

The other cases of this kind which we have had occasion to observe responded in a similar manner.

From our observations we must conclude, therefore, that among the cases of so-called "independent cutaneous

glycolistechia" and notably, but not exclusively, among those showing skin sugar levels of more than 80 mg. per hundred grams there are some patients in whom the independent skin sugar rise is in direct causal relationship with the presenting skin disease. This view is supported by the fact that diabetic management serves both to clear up the dermatosis and to lower the skin sugar level, and by the fact that administration of carbohydrates is followed by a rise in the skin sugar.

We have suggested the term "skin diabetes" to designate the syndrome of therapy resistant, recurrent or chronic dermatosis, a high fasting skin sugar level together with a normal blood sugar curve, and pronounced improvement of the skin disease, as well as a drop in the high skin sugar level, on a low carbohydrate diet, sometimes combined with insulin. The pros and cons of this new term will be discussed further on.

CONCERNING THE PROBLEM OF "SKIN DIABETES"

It is a difficult matter, unquestionably, to evaluate the true significance of a case presenting an independent rise in the skin sugar level and a perfectly normal blood sugar curve. Does this picture represent a preliminary phase of diabetes or is the syndrome just described in no way related to diabetes? What is the evidence for or against a connection with diabetes?

The possibility of a genuine pancreatic diabetes would seem to be excluded by the virtually normal behavior of the blood sugar tolerance curve and by the fact that it has not been possible as yet to demonstrate that a case of this kind has progressed to a frank diabetes. This might be explained partially by the fact that, since pronounced cases of this kind cannot tolerate an average, normal, sugar containing diet, skin manifestations soon develop, which, in turn, call for the elimination of carbohydrates or at least a sharp reduction in their consumption. The possibility of a diabetic etiology might also be negated by the fact that mild cases of true diabetes without skin lesions present normal skin sugar levels together with a moderate fasting hyperglycemia, while we have mostly found a considerable rise in the skin sugar in diabetic individuals with skin manifestations.⁴ I must hasten to point out, however, that the fasting skin sugar level may be assessed as truly normal only when there is nothing pathologic about the skin sugar tolerance curve. (See skin sugar curve 1, which shows a high normal fasting skin sugar level but a diabetes-like skin sugar tolerance curve.)

These various facts would seem to suggest that the disturbance in the skin's carbohydrate metabolism, in cases presenting independent cutaneous glycolistechia, should be regarded as an entity in no way related to the general sugar metabolism of the body and thus, of course, unrelated to ordinary diabetes mellitus.

On the other hand, I should like to mention the following points, which would seem to indicate a direct connection between the clinical syndrome described and a disturbance in the carbohydrate metabolism, as in diabetes mellitus: (1) the high fasting skin sugar levels, which not uncommonly attain and even exceed levels of 80 mg. per hundred grams; (2) the pathologic course of the skin sugar curve, following oral administration of quantities of dextrose—a curve which is characteristically diabetic, both in its rise and in its subsequent course; (3) the return to normal of the fasting skin sugar level, as well as of the entire course of the curve, following institution of a low carbohydrate diet, notably in combination with insulin.

In support of the assumption that the skin sugar is virtually dependent on the pancreas, I should like to recall the conditions in totally pancreatectomized dogs. As mentioned elsewhere,³ the sugar meal causes the skin sugar level to rise to heights never attained by the blood sugar. This can be explained only by the fact that the normal intermediary metabolism of sugar in the skin is dependent on the presence of insulin and that there is a vast concentration of sugar in the skin tissue when there is a lack of insulin.

This interpretation leads to the conclusion that, in cases presenting independent cutaneous glycolistechia and apparently normal blood sugar regulation, there is a disturbance of the carbohydrate metabolism in the skin, a disturbance which may, in my opinion, be related in some manner to a partial interference with the action of insulin involving only the tissues of the skin. This pattern of behavior may be succinctly described by the term "skin diabetes."

The view that the sugar in the skin is not brought there only by way of passive diffusion from the blood, but that there is also an independent, intermediary carbohydrate metabolism in the skin as an organ, has had recent further corroboration by additional, important evidence.⁴

SUMMARY

The term "skin diabetes" is suggested to serve as a designation for the syndrome of therapy resistant skin disease (generally presenting the clinical picture of furunculosis, sweat gland abscesses, eczema, pruritus), high fasting skin sugar level together with a normal blood sugar curve, and pronounced improvement of the dermatosis, as well as fall in the high skin sugar level on a low carbohydrate diet, sometimes combined with insulin.

The following points of evidence lend support to the view that there is a connection between the clinical syndrome and a disturbance in the carbohydrate metabolism, as in diabetes: (1) the high fasting skin sugar levels, which attain and even exceed 80 mg. per hundred grams; (2) the pathologic and characteristically diabetic course of the skin sugar curve following oral sugar forcing; (3) the return to normal of the fasting skin sugar level, as well as of the skin sugar tolerance curve after a low carbohydrate diet, notably in combination with insulin.

The evidence tending to negate any connection with a true pancreatic diabetes has been given due consideration.

However, quite aside from the question as to whether or not cases presenting independent cutaneous glycolistechia are actually to be regarded as cases of "skin diabetes," it may be safely said, on the basis of clinical experience, that a diabetic diet should unhesitatingly be tried in cases of therapy resistant skin diseases such as furunculosis, eczema or pruritus, even when the blood sugar tolerance test is normal.

422 Medical Arts Building.

Psittacosis (Ornithosis) of Nonpsittacine Birds.—Pigeons are known to be extensively infected with a psittacosis-like virus in America, England and Australia. Undoubted cases of the human disease have been contracted from pigeons, but the virus strains differ recognizably from parrot strains, and there is a general tendency to adopt Meyer's name, ornithosis, for the types of virus derived from nonpsittacine birds. Again there is no reason to believe that the natural history of the infection differs in any essential respects from that of psittacosis.—Burnet, Frank MacFarlane: *Virus as Organism*, Cambridge, Mass., Harvard University Press, 1945.

Clinical Notes, Suggestions and New Instruments

INTRAVENOUS NUTRITION FOR EIGHT WEEKS; PARTIAL ENTERECTOMY, RECOVERY

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AND SABRA NICHOLS, S.B., CHICAGO

The use of casein digests for intravenous nutrition has received some recognition. Such nutritional support for relatively brief periods often conveys the impression of affording salutary effects, but these impressions are essentially uncontrolled observations. Our purpose in this communication is to record an instance of intravenous nutrition carried out for forty-six days, the patient receiving no food by mouth and at the end of this period being subjected to a major abdominal operation (partial enterectomy), with recovery and continued intravenous nutrition for nine more days. The total period of nutritional support entirely by vein was fifty-five days before food was permitted by mouth.

REPORT OF CASE

C. E., a man aged 50, admitted Feb. 2, 1945, presented hypertension of 204/130 and a palpable mass in the right side of the abdomen. Retrograde pyelograms were negative. Urea clearance was 21 (normal 40-65). With the diagnosis of retroperitoneal cyst or solid tumor, laparotomy was performed February 12. The abdomen was entered through a right rectus incision, and the mass was found to be a cyst 10 cm. in diameter, bulging forward from the lower anterior pole of the right kidney. The lateral reflection of peritoneum from the mesentery of the ascending colon was incised and the cyst dissected free with a narrow margin of kidney parenchyma and removed without rupture. Hemorrhage was arrested from the kidney, and the abdomen was closed with two soft rubber drains to the excision site. During the second and third days after operation the urine output was 200 and 325 cc. respectively; thereafter it exceeded a liter daily. On the second day the blood nonprotein nitrogen rose to 132 mg. per hundred cubic centimeters. During the first eight days after operation the patient hiccuped severely and frequently (uremia?), coughed considerably, had little appetite and exhibited a blood nonprotein nitrogen count of 73 to 136 mg. per hundred cubic centimeters, with a trace to 2 plus of albumin in the urine (preoperative nonprotein nitrogen 38 mg. per hundred cubic centimeters).

The wound appeared healed on the fourteenth day and all the sutures were removed. On the sixteenth day (February 27) there was almost complete disruption following cough, and at repair a loop of small bowel was observed to have become healed into the depths of the wound over a distance of about 10 cm.; there were two oval patches of apparent necrosis each about 3 cm. in diameter on the bowel wall. By the end of four days small bowel contents poured out of the wound in copious quantities. The quality of this discharge clearly revealed that the fistulas were high in the small bowel. As time went on the wound again separated widely and its floor was composed of a flat patch of jejunal mucosa measuring 8 by 4 cm., with afferent bowel opening in the lower angle and efferent opening in the upper angle (A in the illustration). When several attempts to ingest food were made, a copious discharge from the wound occurred in a short time; this consisted of the partially digested nutriment. To conserve bile and intestinal juices a large rubber T tube was constructed to bridge the gap, and this functioned successfully but did not prevent some escape of bowel contents through the wound. Digestion of the abdominal wall was prevented by constant application of aluminum paste. Ingestion of food, tried once with the T tube in the bowel defect, was not successful, as the tube, plugged by the ingested food, became extruded from the wound.

The patient had been nourished entirely by the intravenous route since February 27. He was requested not to take any-

thing by mouth to reduce the quantity of material passing down the bowel. He did, however, drink a glass of water from time to time but did not ingest food. The latter fact was confirmed by the quality of discharge on the dressings. During the period of intravenous nutrition an electric suction pump connected to a rubber tube in the wound was operated at frequent intervals by the patient. This aided materially in reducing the "spillage" about the wound.

The standard intravenous injections received daily from February 27 to April 22 (fifty-five days) were as follows (no food being ingested by mouth): 1,500 cc. of 10 per cent dextrose in saline solution (600 calories, 13.5 Gm. of sodium chloride) and 1,000 cc. of 5 per cent Amigen (enzymic digest of casein) in 5 per cent dextrose (380 calories), a total of 980 calories and 13.5 Gm. of sodium chloride.

He also received vitamins C, B and K hypodermically at intervals. There were days in which the injections were varied; for example, 800 cc. of 8 per cent gelatin solution in saline solution was substituted for 1,000 cc. of dextrose and casein digest on three occasions, and for five days on another occasion. On one day gelatin was injected in addition to Amigen and dextrose. During a few days the total amount of dextrose injected was 275 Gm. On several days no Amigen or gelatin was received.

TABLE 1.—Blood Transfusions

Date of Transfusions	Plasma Protein, Gm. per 100 Cc.	Red Blood Cells, Millions	Hemoglobin, Gm.	White Blood Cells
2/28/45.....	7.21	2.7	8	15,000
2/28/45 600 cc. blood				
3/ 9/45 600 cc. blood.....	6.21	3.2	10.2	14,000
3/13/45 600 cc. blood.....	7.18	3.39	11.0	8,300
3/18/45 600 cc. blood.....	7.18	3.28	11.5	7,900
4/13/45 1,200 cc. blood (laparotomy).....	7.80	3.60	10.5	15,000
4/27/45 (day before food was resumed by mouth)	6.79			

TABLE 2.—Nitrogen Balance

Number of Days	Average Daily Nitrogen Intra-venously as Amigen, Gm.	Average Daily Glucose Intra-venously, Gm.	Average Daily Total Nitrogen in Urine, Gm.	Average daily Nitrogen Balance, Gm.
5	6.00	300	6.78	-0.78

Blood transfusions were also given on five occasions. The dates are given in table 1.

Nitrogen balance studies were not conducted throughout the whole period, but during a period of five days data were obtained as summarized in table 2.

For obvious reasons the nitrogen balance during the whole period of intravenous nutrition cannot be stated to have been -0.78 Gm. daily but it probably did not vary a great deal from this. For purposes of discussion, if this figure is adopted, the total loss of nitrogen for the fifty-five day period of intravenous nutrition would be 43 Gm. This depletion is not excessive, and in a study of nitrogen loss postoperatively in routine patients during the first ten days a number were found to have had greater nitrogen losses during such periods.

By April 12 (after forty-six days of intravenous nutrition only) the skin edges of the separated wound had healed to the margins of the flattened patch of jejunal mucosa in the bottom of the wound. The patient was then subjected to laparotomy for closure of the wound and reestablishment of intestinal continuity. The abdomen was entered through a horizontal incision extending mesially from the opened wound, and loops of small bowel were separated from one another by transection of fibrous adhesions. The opened segment of upper jejunum was freed from the old wound. This segment, measuring 8 cm. in length, was excised together with a triangular portion of mesentery. The transected ends of the

From the Department of Surgery, University of Chicago.
This study was conducted with the aid of the Charles and Mary F. S. Worcester Fund of the University of Chicago.

bowel were invaginated, and continuity of the alimentary tract was reestablished by side to side anastomosis (*B* in the illustration). The abdominal wounds were closed in layers with soft rubber drains to the right peritoneal gutter. Intravenous nutrition was maintained for nine more days and the patient was then permitted to ingest food by mouth, which he did readily and without distress. The wounds remained closed, but secondary infection developed in the depths, owing to the fact that the operation had been performed in a contaminated field. The patient was discharged May 12, 1945; on admission he weighed 72.2 Kg. and at the time of discharge 59.7 Kg. He was seen in the outpatient clinic on May 25; the wounds were healed, he was consuming a normal diet and he had no complaints.

COMMENT

As already stated, the clinical impressions of the beneficial effects of intravenous nutritional support by nitrogenous nutrients, dextrose and so on are uncontrolled observations when the period of study is relatively brief. The regimen employed for this patient was not ideal and was deficient in several respects, but the data obtained suggest that in this case pronounced depletion of protein was obviated.

During the entire period of intravenous nutrition the patient's condition was fair to good, and after forty-six days his condition was such as to raise little question as to his ability to tolerate laparotomy with enterectomy and jejunal anastomosis. To insure maximal rest of the alimentary canal, food

After forty-six days laparotomy for partial enterectomy and enteroenterostomy were performed, closing the fistula. Recovery was uneventful, intravenous nutrition being continued for nine days after operation. The experience in this case suggests that intravenous nutrition permitting the withholding of food by mouth might prove beneficial in the management of large fistulas high in the small bowel, since discharges from the fistulas would be appreciably reduced and thus permit a degree of healing which might then be completed by surgical closure.

950 East Fifty-Ninth Street.

BENZIDINE AS CAUSE OF OCCUPATIONAL DERMATITIS IN A PHYSICIAN

RUDOLF L. BAER, M.D., NEW YORK

Eczematous dermatitis is not an uncommon occupational disease among physicians and dentists. Often merely a constant annoyance or handicap, the dermatitis may be so severe, intractable and incapacitating that it forces the physician to change his specialty or even to give up his profession entirely.

Often, particularly in surgeons, the dermatitis is due largely to the primary irritant effects of chemical agents such as soap or alcohol and physical agents such as friction (scrubbing), heat and maceration (under rubber gloves). In other cases the dermatitis is due mainly to allergens to which the physician is exposed in the course of his work. Notorious among these allergens are rubber gloves, local anesthetics and some local antiseptics.

This case of occupational allergic eczematous dermatitis is reported because the causal allergen, although used by many thousand doctors in their everyday work, has to my knowledge never been described as a cause of occupational dermatitis in physicians.

REPORT OF CASE

Dr. S. G., aged 32, first seen in the practice of Dr. M. B. Sulzberger and myself on Jan. 23, 1945, complained of a recurring eruption on the hands and face from which he had suffered on and off since September 1944. In the recurrent attacks the left hand was more severely involved and was at times the site of secondary pyogenic infection associated with lymphadenitis and elevation of temperature up to 103 F. Soothing local treatment and sulfadiazine taken by mouth usually controlled the eruption, and the superimposed infection within two to three weeks.

A recurrence which began Jan. 1, 1945 resembled the previous ones except that the anterior part of the face was more seriously involved with erythema and itching. On January 23, when the patient was first seen, this attack had largely subsided. He still presented slight erythema and scaling of the palms and fingers, with drying vesicular lesions at the edges of the affected areas. There were no signs of a fungous infection of the feet. No fungi could be found on microscopic examination or in cultures of scrapings from the lesions on the hands. The remnants of the eruption cleared up rapidly under bland local treatment.

A presumptive diagnosis was made of allergic eczematous contact-type dermatitis with secondary pyogenic infection. Patch tests were carried out with the following suspected materials (each in the correct test concentration¹): two types of hair tonics, scented talc, toothpowder, two types of nose drops, solution of formaldehyde, zephiran chloride (alcoholic solution), zephiran chloride (aqueous solution), metaphen, merthiolate (alcoholic solution), merthiolate (aqueous solution), rubbing alcohol, a proprietary ointment containing histamine, electrode jelly, lubricating jelly, two types of endocrine substances in oil, bismuth in oil, neoarsphenamine, x-ray fixing solution, x-ray developing solution, rubber finger cot and rubber gloves. None of these materials elicited a significant reaction. In view of the fact that the causal agent had not been found and in order to increase the chances of obtaining an accurate history of suggestive exposures, the patient was asked to return immediately in case of signs or symptoms of a recurrence.

On February 2 the patient returned and stated that two days previously at about 6 p. m. he had noticed itching of the finger-

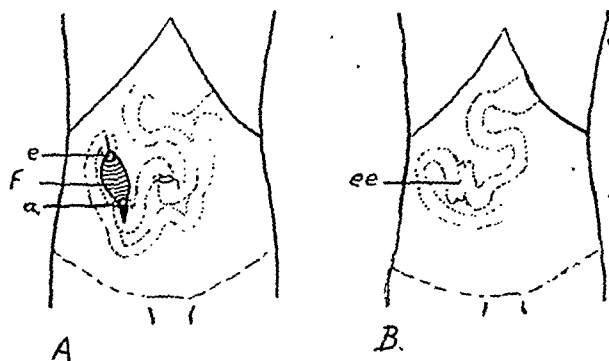


Diagram showing: *A*, large opening in upper jejunum (jejunal fistula, *f*) and opened segment of bowel (*a*) efferent opening, (*b*) efferent opening. Until skin edges of wound healed to bowel mucosa the patient received all nutriment by vein and no food by mouth over a period of forty-six days; *B*, repair of jejunal fistula by excision of opened segment and side to side anastomosis (*ee*). After operation the patient received intravenous nutriment for nine days and no food by mouth.

by mouth was withheld for nine days after operation while intravenous nutrition was continued. Judging from general experience the patient would not have been expected to have remained in as good condition as he did and to undergo successfully the surgical procedures described had there been no benefits from intravenous nutrition. The management of large fistulas high in the small bowel is complicated by the copious discharges, which often result in varying degrees of digestion of the wound edges. Furthermore, general nutritional deterioration may result because of the loss of electrolytes, and fluid from the fistulas as well as escape of appreciable quantities of partially digested food. The vicious circle develops, as increased ingestion of food increases the discharges from the fistula. The experiences in the case reported suggest that large fistulas high in the small bowel may be treated by withholding all nutriment by mouth for a period during which nutrition is afforded by the intravenous route. The discharges from the fistulas are reduced to a minimum, and frequent suction of the wound facilitates healing. When the latter has become maximal, operative closure is carried out and its success is aided by maintaining the bowel at rest.

SUMMARY

A patient with a large upper jejunal fistula received intravenous casein digest, dextrose and saline solution intravenously for a period of eight weeks. No food was ingested by mouth.

1. Sulzberger, M. B., and Baer, R. L.: *Year Book of Dermatology and Syphilology*, Chicago, Year Book Publishers, Inc., 1943, pp. 25-42.

of the left hand. The next morning there had been a recurrence of the characteristic eruption. Examination showed pronounced edema of the left hand with erythema and vesication, particularly of the fingers. The right hand showed the same changes in a less pronounced form. Questioning brought to light the following additional materials to which the patient had been exposed during the twenty-four hour period preceding the onset of the most recent attack: sodium morrhuate in benzyl alcohol, acetic acid, testosterone propionate in oil, vitamin B complex solution, thiamine hydrochloride solution, Benedict's solution, benzidine powder and a proprietary lousicide. Patch tests with these materials in the correct test concentrations were applied. Benzidine powder produced a very strong eczematous reaction, while none of the other materials elicited a significant response. A recheck of the patient's activities revealed that at each occasion he had performed a benzidine test for blood in a stool specimen just preceding the various recurrences of his hand eruptions.

COMMENT

The present case is interesting because the allergen involved seems to be an unusual cause of occupational dermatitis among physicians. No reference could be found in the literature to any case in which benzidine had been the cause of an occupational dermatitis in a physician. However, Schwartz and Tulipan² listed benzidine among the dye intermediates causing dermatitis in workers engaged in the manufacture of dyes.

SUMMARY

A physician suffered from a severe recurrent eczematous dermatitis of the hands and a milder dermatitis on the face. Patch tests with a series of materials to which he had been exposed in the course of his work showed that he was strongly hypersensitive to benzidine powder. A recheck of the dates of the various attacks of dermatitis revealed that each attack had started on a day when the patient had performed a benzidine test for blood in a stool specimen.

962 Park Avenue.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, Secretary.

FIVE YEAR SURVEY OF METHODS FOR ARTIFICIAL RESPIRATION

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MIAMI, FLA.

Artificial respiration is a form of therapy which does not readily lend itself to clinical study. Acute asphyxia requires immediate treatment if the patient is to recover, and seconds may mean the difference between recovery and death. As a result, laymen cannot wait for the arrival of a physician before instituting treatment, and rarely does a physician arrive before the critical period of treatment is over. Artificial respiration has thus been necessarily entrusted to the hands of nonmedical groups and individuals such as firemen, policemen and lifeguards. The physician does not usually think in terms of going to the public to get data on therapy, but it appears necessary in the case of artificial respiration, for it is laymen who administer the treatment and observe the results in the overwhelming majority of cases.

Experimental work has been done in this field, but the results are not generally accepted as being conclusive. Measurements have been made of the respiratory exchange in normal human subjects with the use of

various methods of artificial respiration,¹ but there have been few such reports, and different observers have not agreed in their findings. Furthermore, there is good reason to doubt that values for the respiratory exchange in normal subjects have any bearing on the exchange in the deeply asphyxiated and apneic individual whose muscles are atonic and without resilience. This is especially true of the Schafer prone pressure method, which depends on elastic recoil of the diaphragm for production of inspiration. The newly developed rocking method of Killick and Eve² is unique in that it does not depend on elastic recoil. In this method the patient is alternately tipped back and forth on a stretcher, the weight of the viscera causing the diaphragm to move back and forth as a piston. This method is under trial in England but has not been used to any extent in this country.

Animal experimentation has shown the importance of the use of oxygen and carbon dioxide in the treatment of acute asphyxia. Loughheed, Janes and Hall³ have demonstrated that the carbon dioxide as well as oxygen content of the blood diminishes as asphyxia progresses. Since carbon dioxide is a normal stimulant of the respiratory center, its use in conjunction with oxygen in the treatment of acute asphyxia appears quite rational. There are some who advocate the inhalation of these gases simultaneously with the application of a manual method of artificial respiration,⁴ and there are others who have demonstrated the value of administering these gases by alternate pressure and suction.⁵ There are some who contend that the use of alternating pressure and suction is unphysiologic⁶ and that pressure great enough to inflate the lungs will cause tissue injury. The work of Coryllos⁷ shows, however, that in the dog a pressure far above that needed for respiratory exchange must be attained before evidence of injury appears.

For fourteen years the Council on Physical Medicine has been investigating methods, both manual and mechanical, recommended for the administration of artificial respiration. During this time the Council has investigated many devices and has published reports on them. Realizing that data obtained from experiments on dogs and normal human beings did not give sufficiently satisfactory evidence for the evaluation of different methods of resuscitation, the Council decided to conduct a survey of results obtained "under clinical conditions." The aim of the survey was to get sufficient data from various life-saving organizations on actual cases of artificial respiration to permit the drawing of conclusions regarding the relative efficacy of different methods. A progress report was published in 1943;⁸ the present paper is a final report of the five year study.

A number of organizations were invited to cooperate with the Council, as for example fire departments, life saving crews at beaches and large commercial organi-

1. Cordier, D. G.: Methods of Artificial Respiration, Brit. M. J. 2: 381-383 (Sept. 25) 1943.

2. Killick, E. M., and Eve, F. C.: Physiological Investigation of Rocking Method of Artificial Respiration, Lancet 2: 740 (Sept. 30) 1933.

3. Loughheed, D. W.; Janes, J. M., and Hall, G. E.: Physiological Studies in Experimental Asphyxia and Drowning, Canad. M. A. J. 40: 423 (May) 1939.

4. Loughheed, Janes and Hall; Henderson and Turner.⁶
5. Martinez, D. B.: Mechanical Resuscitation of Newborn: Report of 500 Cases, J. A. M. A. 109: 489-490 (Aug. 14) 1937. Waters, R. M.: Simple Methods for Performing Artificial Aspiration, J. A. M. A. 122: 559 (Oct. 30) 1943.

6. Henderson, Yandell, and Turner, J. M.: Artificial Respiration and Inhalation: Principle Determining Efficiency of Various Methods, J. A. M. A. 116: 1508-1515 (April 5) 1941.

7. Coryllos, P. N.: Mechanical Resuscitation in Advanced Forms of Asphyxia: Clinical and Experimental Study in Different Methods of Resuscitation, Surg., Gynec. & Obst. 66: 698-722 (April) 1938.

8. Ross, B. D.: Survey of Methods for Artificial Respiration, J. A. M. A. 122: 660-663 (July 3) 1943.

2. Schwartz, L., and Tulipan, L.: Occupational Diseases of the Skin, Philadelphia, Lea & Febiger, 1939.

zations, e. g. electric, steel and chemical manufacturers. Some of the commercial organizations were not interested and did not care to cooperate, while others were anxious to assist in the work but were unable to follow through because of an insufficient number of cases. Reports were received from the U. S. Coast Guard and the Chicago, Detroit and Los Angeles fire departments. These organizations provided a sufficient number of cases to make the investigation worth while, whereas manufacturers and other institutions that sent too few reports were dropped. It was felt that their reports would not contribute to a statistical evaluation.

The aforementioned organizations were selected because each had a trained life-saving crew which stood ready to render service at a moment's notice and was equipped to make a fairly accurate report and to keep records. The cooperating groups were requested to report every case, whether revival or death occurred. They were asked to state the cause of asphyxia, the method of resuscitation, the time that elapsed before artificial respiration was begun and an estimate of the results. Autopsy reports were also requested.

The Council adopted a case report blank, and it was used by the Chicago Fire Department. The U. S.

TABLE 1.—*Sources of Case Reports*

	Chicago F. D.	Los Angeles F. D.	U. S. Coast Guard	Detroit F. D.	Other Sources	Total
Complete cessation of respiration						
Survival						
Cardiac.....	10	9	..	..	..	19
Others.....	44	116	44	..	4	208
Death						
Cardiac.....	609	139	7	25	..	780
Others.....	245	277	76	22	6	626
Abnormal respiration						
Survival						
Cardiac.....	358	268	..	27	..	653
Others.....	445	440	28	113	..	1,026
Death						
Cardiac.....	21	6	..	4	..	31
Others.....	3	4	1	1	..	9
	1,735	1,259	156	192	10	3,352

Coast Guard and the Los Angeles Fire Department employed their own blanks. The Detroit Fire Department used its own forms, which had previously been revised at the suggestion of the Council.

Material presented in this paper represents reports of cases of asphyxia occurring from 1940 through 1944. Table 1 shows the number of reports contributed by each cooperating group. They are classified according to the type of asphyxia and the results obtained. The cases were first separated into two major groups, those with complete cessation of respiration and those with abnormal respiration. All cases in which there was any type of spontaneous respiratory movement were included in the latter group. Cases were further classified into cardiac and noncardiac groups.

The Chicago Fire Department contributed the most reports, 1,735. The Los Angeles Fire Department contributed 1,259, the Detroit Fire Department 192, the U. S. Coast Guard 156 and other sources 10, for a total of 3,352. There were 1,633 cases in which there was no spontaneous respiration at the start of treatment. Of these there were 227 survivals and 1,406 deaths. Cardiac cases comprised 8 per cent of the survivals and 55 per cent of the deaths. There were 1,719 cases of abnormal respiration, in which there were 1,679 survivals and 40 deaths. In this group cardiac cases comprised 39 per cent of the survivals and 78 per cent of the deaths.

CASE REPORT OF ASPHYXIA FOR THE COUNCIL ON PHYSICAL MEDICINE OF THE AMERICAN MEDICAL ASSOCIATION

- Name of Patient: Address: Site of Accident: Date of Accident: Time Artificial Respiration First Started: Age: Sex: Occupation: Time Discovered:
- Cause of Asphyxia: Carbon Monoxide Asphyxia of the Newborn Drowning Heart (Specific Diagnosis) Suffocation Other Causes
- Had Breathing Completely Ceased When Patient Was First Discovered?
- Was Artificial Respiration Administered Before Life Saving Crew Arrived? By Whom? What Method Was Used? How Long?
- Condition of Patient at Start of Artificial Respiration: Was Heart Beating? Was Patient Breathing? Could Pulse be Felt? Was Respiration Normal? Color of Skin (Pink? Blue? White?)
- Method of Artificial Respiration Used by Life Saving Crew: A. Manual Schafer Prone Pressure How Long? Other Manual Method How Long? B. Mechanical: Resuscitator² (see definition below) How Long? Inhalators³ (see definition below) How Long? Other Mechanical Device How Long? Make and Manufacturer C. Combination of Manual and Mechanical (if combination was used, please fill in A and B also): Was Manual Method Used Before or After Resuscitator? Was Manual Method Used Directly Before or at the Same Time as Inhalator?
- If Two or More Methods Were Used in Succession Was the Patient Breathing Before the Second (and/or Third? Etc.) Method Was Used?
- Was Patient Alive at End of Artificial Respiration? Pulse After Revival Respiration Any Bleeding from Nose or Mouth? Remarks on General Condition of Patient
- Was a Physician Present? Name: Address: Phone No.: How Long After Discovery of Asphyxia Did Physician Arrive?
- Who Administered Artificial Respiration? (Name and Address) Physician: Lifeguard: Fireman: Coast Guardsman: Others: If Not a Physician, What Type of Training Did He Have?
- Was Patient Hospitalized After Resuscitation? Name of Hospital: Address:
- Was Person in Average Health Prior to Accident?⁴ Heart Disease (Specific Diagnosis)? Tuberculosis? Diabetes? Other Disease?
- Subsequent History of Recovered Patient⁴ Pneumonia? Other Remarks:
- Was an Autopsy Performed? By Whom? Was There Any Evidence of Pathologic Condition of Lungs? Other Findings:

Signature of Physician: Date:
Signature of Person Administering Artificial Respiration: Date:

- This information is for a statistical study of methods of artificial respiration. If unable to fill in all items, please give as much information as possible.
- Resuscitator: Any device for blowing and sucking air or some other gas mixture in and out of the lungs.
- Inhalator: Any device supplying oxygen and carbon dioxide for the patient to breathe without mechanically blowing and sucking.
- Information about history of patient to be obtained from family physician or relative.
- If insufficient space is allotted, record additional information on separate paper. Write a short history regarding accident on a separate sheet.

RESUSCITATION OF THE APPARENTLY DROWNED

U. S. COAST GUARD BLANK

- Coast Guard Unit: Place: Date of Accident
- Name, age and sex of person imperiled:
 - P. O. address:
 - Exact time of accident:
 - Distance and direction from unit:
 - Was scene of accident visible from unit?
 - Cause of accident:
 - Temperature of water and atmosphere:
 - Length of time under water:
 - How was time under water determined?
 - By whom taken from water?
 - Did patient rise to the surface after first disappearing? If so, how many times?
 - Did patient breathe or show any other signs of life when taken from the water?
 - How soon after accident did members of Coast Guard arrive on scene?

- 14 Were efforts made to revive person before the Coast Guard took charge? If so, state by whom, how long and the means employed
- 15 Was the patient apparently dead when taken in charge by members of the Coast Guard?
- 16 Were patient's jaws clenched?
- 17 How soon after artificial respiration was begun did patient show signs of life?
- 18 What were the first signs of life shown?
- 19 What signs of life, if any, were shown while water was first being expelled from the lungs?
- 20 State probable quantity of water expelled or drained through the mouth on turning patient on stomach the first time and second time, respectively
- 21 Length of time artificial respiration was employed
- 22 How many Coast Guard men took part in this resuscitation?
- 23 What means were employed during process of artificial respiration to impart warmth to the extremities?
- 24 What other means were employed to restore circulation?
- 25 What stimulants, if any, were administered?
- 26 Give method of resuscitation employed
- 27 Was patient resuscitated?
- 28 State name and address of physician called, time of arrival and service rendered

Remarks

U S C G
Commanding Officer

INSTRUCTIONS

1 This form shall be submitted by all units on each occasion of resuscitation of the apparently drowned, whether or not resuscitation is successful. It shall be prepared in quadruplicate. The original and one copy shall be forwarded to headquarters via the district commander and a copy shall be included for his files, a copy shall be retained in the files of the unit concerned.

2 Under "Remarks" relate in detail the circumstances of the accident, describe each step taken in restoring the patient, and state the successive signs of returning life shown while resuscitation was being performed. If the attempt to revive the patient was unsuccessful, obtain the opinion if available, of physician or local health officials as to whether or not patient was dead on removal from the water and if death was due to causes other than drowning. State cause of death, if known.

3 If necessary, use separate sheets of paper, 8 by 10½ inches in size, for the submission of additional remarks or in answer to any of the questions on page 1 of the form.

LOS ANGELES FIRE DEPARTMENT

RESCUE SERVICE REPORT

Co Date responded 19
Platoon
Responded in (vehicle)
Time responded Time back Time worked
Name of victim Age
Address
Location responded to Phone
Condition of victim on arrival
Nature of case
Doctor in attendance
Address
Equipment used
Method of artificial respiration used
Amount of oxygen used
Amount of carbon dioxide oxygen mixture used
Case terminated (date and time, if member was detailed)
Results of treatment Beneficial No effect Died Revived
Names of men responding or detailed
Remarks
Company Commander.

DETROIT FIRE DEPARTMENT

RESCUE COMPANY OPERATIONS REPORT

Rescue No Case No
Date Unit No
Time Company Personnel men
Time worked hrs min Distance traveled miles
Nature of case Cause
Name of subject Address
Age yrs Married Single Color
Condition on arrival
Conscious Unconscious Breathing Not Breathing
Time between asphyxia and treatment
Condition of subject when left
Type of service rendered
Employee of Address
Oxygen used (amt) Was Doctor present
Doctor's name Address
In whose charge was subject left
Department called by
Remarks
Company Commander.

Table 2 represents an analysis of the 227 cases of nonbreathing in which survival occurred. The common causes of asphyxia in this group, in order of frequency, can be seen to be asphyxia neonatorum, immersion, heart disease, carbon monoxide poisoning, acute respiratory infections, poisoning with depressant drugs, suffocation, convulsions, asthma and stroke. In the miscellaneous group are causes which occurred fewer than four times each and it includes tracheal obstruction, epilepsy, acute alcoholism and anesthesia. There were 153 cases in which a resuscitator was used successfully. In 13 of these the Schafer method was used beforehand. There were 58 cases in which the Schafer method caused resuscitation. In 8 of these an inhalator was used at the same time as the Schafer method. The other less commonly used methods follow in the table.

Cases of impaired respiration in which survival occurred are presented in table 3. Cardiac cases form the largest group, 653, with other causes in order of frequency being carbon monoxide poisoning 252, asphyxia neonatorum 162 and asthma 98. The other less common causes follow in the table. Among the miscellaneous causes were hysteria, diabetes, hemorrhage, acute indigestion, acute alcoholism, leukemia, carcinoma, exhaustion, heat exhaustion, insulin shock, perforated peptic ulcer, food poisoning, and poisoning with sulfur dioxide, with ammonia and with methane. The inhalator was the method used in the great majority (95.2 per cent) of the 1,679 cases.

Table 4 represents the cases in which death occurred. It is probable that many of the patients in this group were already dead at the time treatment was started, but cases were not excluded unless (1) there was definite evidence that thirty minutes or more had elapsed between cessation of respiration and start of treatment, (2) there was evidence of acute trauma or (3) the patient had been pronounced dead by a physician before artificial respiration was started. Thirty minutes was selected as the maximum interval between cessation of breathing and the start of artificial respiration, although a maximum of more than fifteen minutes is probably not consistent with physiologic evidence. A thirty minute limit was chosen because, owing to the emergency nature of the cases reported and the inherent confusion which naturally results, errors of as much as 100 per cent could easily be expected in the estimation of time by onlookers or participants and because periods of more than thirty minutes have been reported in the literature. Cardiac causes accounted for more than half (56.1 per cent) of the 1,446 cases reported in this table. The other relatively common causes were immersion 118 (8.2 per cent), asphyxia neonatorum 97 (6.7 per cent), suffocation 42 (2.9 per cent) and carbon monoxide poisoning 40 (2.8 per cent). Less common causes were electric shock, acute respiratory infections, stroke and asthma. Miscellaneous causes, occurring less frequently than thirteen times each, were pulmonary embolism, diabetes, leukemia, carcinoma, anesthesia, acute alcoholism, cyanide poisoning, uremia, enlarged thymus and depressant drugs. Use of the resuscitator was the most frequent method employed. The second most frequent method was the use of the resuscitator preceded by the Schafer method. This represents instances in which a passer-by had

9 Bates, G. Modern Resuscitation Procedures, Hospitals 11: 46-50 (March) 1940. Bates, G.; Gaby, R. E., and MacLachlan, W. Need for Prolonged Artificial Respiration in Drowning, Asphyxiation and Electric Shock. Canad. M. A. J. 39: 120-125 (Aug.) 1938.

started the Schafer method and firemen subsequently took over with a resuscitator.

Table 5 is a composite of tables 2 and 4. It includes all deaths and all cases of nonbreathing in which survival occurred. Examination of this table gives one an idea of the survival rate for each cause of asphyxia. The survival rate in this series is poorest for cases of electric shock: no survivals, 16 deaths. The rate is also very poor for cardiac cases: 1 survival to 42.7 deaths. The highest survival rate is for cases of asphyxia neonatorum: 1 survival to 1.2 deaths. The rate for the other common causes of asphyxia are immersion, 1 to

accounting to a great extent for the poor survival rate in this group.

Calculation of the relative survival rates for the different methods of resuscitation has not been attempted because there are too few cases in which the method of resuscitation can be assumed to be the only significant variable. It is only in cases of immersion that there are enough data to permit any type of comparison. In 82 cases of immersion in which the Schafer method was used there were 35 survivals. In 44 cases of immersion in which a resuscitator was used there were only 2 survivals: in both of the successful cases the Schafer

TABLE 2.—Cases of Survival in Which Spontaneous Respiration Was Not Present at Start of Treatment

Cause of Asphyxia	1 Resuscitator	2 Schafer	3 (1) Schafer (2) Resuscitator	4 Mouth to Mouth	5 Schafer with Inhalator	6 (1) Schafer (2) Schafer with Inhalator	7 Howard-Silvester	8 Schafer Alter- nating with Howard-Silvester	9 Pulmotor	10 (1) Schafer (2) Resuscitator (3) Respiator	Total
1. Asphyxia neonatorum.....	80	..	..	..	..	..	..	..	..	..	80
2. Immersion.....	..	34	2	..	..	1	5	..	..	..	44
3. Carbon monoxide.....	7	4	5	1	..	..	..	2	1	..	18
4. Cardiac.....	12	2	1	..	3	1	..	..	..	..	19
5. Acute respiratory infections.....	3	3	..	1	..	..	..	..	..	..	7
6. Drugs.....	5	..	..	..	..	1	..	..	..	..	6
7. Suffocation.....	1	1	1	1	..	..	..	..	..	..	4
8. Convulsions.....	1	1	..	2	..	..	..	..	..	..	4
9. Asthma.....	3	1	..	..	..	..	..	..	..	..	4
10. Stroke.....	3	..	1	..	..	..	..	..	..	..	4
11. Miscellaneous.....	7	1	3	..	..	..	..	..	..	..	11
12. Undetermined.....	18	3	..	2	1	1	..	..	..	1	26
	110	50	13	7	4	4	5	2	1	1	227

TABLE 3.—Cases of Impaired Respiration in Which Survival Occurred: In Each Case Breathing Had Not Stopped Completely at Start of Treatment

Cause of Asphyxia	1 Inhalator	2 (1) Schafer (2) Inhalator	3 Howard-Silvester	4 Schafer	5 (1) Schafer with Inhalator (2) Inhalator	6 (1) Mouth to Mouth (2) Inhalator	7 Miscellaneous	Total
1. Cardiac.....	645	6	..	..	..	1	1	653
2. Carbon monoxide.....	236	8	..	1	5	..	2	252
3. Asphyxia neonatorum.....	162	..	..	..	..	..	..	162
4. Asthma.....	95	3	..	..	..	..	..	98
5. Convulsions.....	52	1	..	..	..	1	2	56
6. Pneumonia.....	42	..	..	..	..	..	1	43
7. Stroke.....	35	..	..	..	..	..	..	35
8. Immersion.....	4	3	9	16	..	..	1	33
9. Drugs.....	18	1	..	..	..	..	..	19
10. Ammonia.....	9	..	..	..	..	..	..	9
11. Suffocation.....	10	2	..	..	..	..	..	12
12. Epilepsy.....	9	..	..	..	..	..	..	9
13. Miscellaneous.....	118	2	1	1	..	..	2	124
14. Undetermined.....	161	5	2	..	1	..	2	174
	1,599	31	12	18	6	2	11	1,679

2.7; carbon monoxide poisoning, 1 to 2.2; suffocation, 1 to 10.5. These rates are undoubtedly a function of the circumstances surrounding each type of case as well as of the cause of asphyxia itself. The high survival rate of cases of asphyxia neonatorum can thus largely be attributed to the fact that here the time interval between asphyxia and treatment is minimal. In contrast to this is the group of cases of suffocation. A typical case here is that of an infant found in bed smothered by its pillow or blanket. The mother had usually put the child to bed some hours previously, and there is no way of getting more than a very rough estimate of the time between cessation of respiration and start of treatment. Undoubtedly most of these children were dead before treatment was started,

method was used prior to the use of the resuscitator. It seems probable that much of this apparent superiority of the Schafer method in cases of immersion is due to the fact that no precious seconds were wasted in waiting for the arrival of a mechanical apparatus. It cannot be emphasized too strongly that an asphyxiated person must have artificial respiration at once. Waiting for a machine, however efficient, may be fatal.

COMMENT

Before attempting to summarize results or draw conclusions, it should be pointed out that there are two features of this survey which weaken it considerably. The first of these is the paucity of data regarding the lapse of time between asphyxia and the start of treat-

ment. Although these data were asked for in all cases, this information was included in less than half of our reports. The data from the Los Angeles Fire Department is poorest in this respect, for its routine form does not contain a question regarding the lapse of time between asphyxia and the start of treatment. The second weakness in this survey is the lack of autopsy reports. Such information would have been quite helpful in determining the incidence of such pathologic conditions as pulmonary emphysema or fractured ribs, which might be attributable to some form of artificial respiration.

SUMMARY

1. Reports of cases of artificial respiration have been collected from the United States Coast Guard and from the Chicago, Los Angeles and Detroit fire departments during the years 1940 through 1944. These organizations sent in reports on all cases, regardless of whether or not resuscitation occurred. A total of 3,352 reports were obtained.

2. There are reported 153 cases of acute asphyxia in which a resuscitator, a mechanical device for artificial respiration employing alternate blowing and sucking, resulted in revival. None of the patients, 80 of

TABLE 4.—Deaths. In All Cases There is No Definite Evidence That Thirty Minutes or More Had Elapsed Between Cessation of Breathing and Start of Artificial Respiration

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	Resuscitator	(1) Schafer (2) Resuscitator	Schafer	Howard-Silvester	(1) Inhalator (2) Resuscitator	Schafer with Inhalator	(1) Schafer (2) Schafer with Inhalator	(1) Resuscitator (2) Schafer with Inhalator	Schafer Alter- nating with Howard-Silvester	(1) Mouth to Mouth (2) Resuscitator	(1) Resuscitator (2) Schafer	(1) Chest Com- pression (2) Resuscitator	(1) Schafer with Inhalator (2) Resuscitator	Miscellaneous	Total
Cause of Asphyxia															
1 Cardiac	659	79	2	4	25	17	4	6	1	..	2	2	2	6	811
2 Immersion	22	20	39	17	..	..	..	..	9	..	..	..	1	1	118
3 Asphyxia neonatorum	94	..	..	..	..	..	..	..	..	12	..	..	..	1	97
4 Carbon monoxide	24	8	..	..	..	6	2	..	..	..	..	..	..	..	40
5 Suffocation	27	9	..	..	2	..	..	..	2	..	..	..	..	2	42
6 Electric shock	7	6	..	..	..	1	..	..	..	..	..	..	..	2	16
7 Acute respiratory infection	17	2	..	..	1	..	..	..	..	..	..	..	..	..	21
8 Stroke	19	1	..	..	1	..	1	..	..	..	..	..	..	..	22
9 Asthma	12	..	..	..	..	1	..	..	..	..	..	..	..	..	13
10 Miscellaneous	36	6	..	..	..	..	..	1	..	1	..	..	..	1	47
11 Undetermined	195	13	1	..	2	3	..	..	..	..	..	..	..	5	219
	1,212	144	43	20	50	52	13	7	10	5	2	2	3	23	1,446

TABLE 5.—Survivals and Deaths. In Survived Cases There was no Evidence That Spontaneous Respiration was Present at Start of Treatment. S—Survival. D—Death.

	1		2		3		4		5		6		7		8		9		10			
	Resuscitator		Schafer		(1) Schafer (2) Resusci- tator		Mouth to Mouth		Schafer with Inhalator		(1) Schafer (2) Schafer with Inhalator		Howard- Silvester		(1) Mouth to Mouth (2) Resusci- tator		(1) Schafer Alternating with Howard- Silvester		Miscel- laneous		Total	
Cause of Asphyxia	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
1 Cardiac	13	60	2	3	1	79	..	..	3	17	1	4	0	..	..	0	1	0	45	19	811	
2 Immersion . . .	0	22	..	39	2	20	..	..	0	1	1	5	5	17	..	..	2	9	0	3	44	118
3 Asphyxia neonatorum.	80	94	..	..	..	..	..	..	..	..	..	..	..	..	0	2	..	..	0	1	80	97
4 Carbon monoxide .	7	24	4	0	5	8	1	0	0	0	..	2	..	..	..	..	..	..	1	0	18	40
5 Suffocation on.....	1	27	1	0	1	9	1	0	0	2	..	..	..	..	0	2	..	..	0	2	4	42
6 Acute respiratory infec- tion . . . . .	..	17	3	0	0	2	1	0	..	..	..	..	..	..	..	..	..	..	0	2	7	21
7 Stroke . . . . .	..	19	..	..	1	1	..	..	..	..	0	1	..	..	..	..	..	..	0	1	4	22
8 Asthma	3	12	1	0	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	1	13
9 Miscellaneous . . .	0	7	..	..	0	6	..	..	..	..	0	1	..	..	..	..	..	..	0	2	0	16
10 Undetermined . . .	11	36	2	0	3	6	2	0	..	1	0	..	..	0	1	..	..	..	0	4	21	47
11 Undetermined . . .	15	195	3	1	0	13	2	0	1	2	9	..	..	..	..	..	..	..	1	7	26	219
	140	1,212	50	43	13	144	7	0	4	32	4	1	5	20	0	5	2	10	2	67	227	1,446

Physicians were present in virtually all cases, and it was they who made the diagnoses. In only a few cases, however, was a physician present at the start of treatment. The life-saving crew arrived on the scene, as a rule, at least fifteen to twenty minutes before the physician.

Although the gross total of case reports appears impressive (3,352), the number of cases of actual resuscitation is quite small (227) in comparison to the number of different causes of asphyxia (over 11) and the number of different methods of artificial respiration used (10). The fact that in over 60 per cent of the cases revival was achieved by a single method (resuscitator) and that more than half of these cases were those of a single type of asphyxia (asphyxia neonatorum) further shows that statistical analysis is not feasible.

whom were newborn infants, showed evidence of injury as a result of this procedure.

3. There are reported 58 cases of acute asphyxia in which the Schafer prone pressure method was successful in resuscitation. In none of these cases nor in any of the additional 328 cases in which the Schafer prone pressure method was used either entirely or in part was there any report of fractured ribs. Such injuries have been said to be a possible result of improper use of this method.

4. No instance of revival was reported in which more than fifteen minutes elapsed between the cessation of breathing and the start of artificial respiration.

5. Victims of heart disease make up a large portion of the cases treated by the inhalator squads of the Chicago, Los Angeles and Detroit fire departments.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 6, 1945

THE BUSH REPORT ON SCIENTIFIC RESEARCH

In the Organization Section in this issue of THE JOURNAL appears the report of a special committee appointed by the Committee on Postwar Medical Service to consider the various proposals that have been made for the aid of research through the granting of funds by the federal government. In a previous issue of THE JOURNAL an abstract was published of the various measures to achieve this end, including the bills proposed by Senators Kilgore, Magnuson and Byrd. Among the points emphasized by practically every medical group that has considered the problem are the following:

1. Voluntary philanthropic foundations, universities and similar agencies have contributed greatly to scientific and particularly to medical research in the United States. The establishment of a federal agency with vast funds might well obstruct, if not destroy, such voluntary efforts and thereby do more harm than good.

2. The federal government aids research on cancer and on tuberculosis as well as research on some other conditions by special grants of funds. Measures have been introduced into the Congress for the spending of enormous funds, particularly in relationship to the study of neuropsychiatric disorders and dental conditions. Any program developed by the federal government should take into account the desirability of coordinating and integrating research on all medical problems proportionately to the need for such research and to the importance of the problems to be investigated.

3. The advancement of medical science and the improvement in health in recent years have been so great that both Presidents Roosevelt and Truman emphasized the medical aspects of research in their messages to the Congress. Nevertheless some of the measures that have been proposed for establishing a National Research Foundation fail to make provision

for direct representation of medicine in the governing boards to be established, leaving it rather to subcommittees to undertake consideration of the medical problems.

4. Most of the measures that have been introduced provide for fellowships to encourage young men who seem to have aptitude for research and for sections to be devoted to the dissemination of information and knowledge that may be developed. From the point of view of medicine there should be coordination between the special agencies created for education and for the dissemination of information with the agencies created specifically for research and also with the central board.

5. The question of patents constitutes a special problem. Discussion of ownership of patents and the licensing of manufacturers under such patents may well come to be the stumbling block over which the whole proposal may fall.

Possibly the ideal concept for the control of a National Research Foundation such as is proposed would be the creation of a general controlling board to include a chairman and members who would themselves be chairmen of various subsidiary committees. By such a technique adequate representation of each of the interests concerned would be provided and with it better coordination for the management of the Research Foundation.

KETOSIS

Formerly physiologists believed that ketone body formation was an abnormal metabolic process due to incomplete combustion of fatty acids and that it was necessary to metabolize carbohydrates in order to utilize the ketone bodies completely. As a result of the work of Mirsky, Soskin, Somogyi and others this concept has been questioned in recent years. Evidence exists that ketone bodies are metabolites which are normally present in the animal organism; when there is an increased production, acidosis results. Early workers showed by means of the tissue slice technic, by perfusion and by experiments on intact animals that ketone bodies are produced only by the liver but cannot be utilized by this tissue. Extrahepatic tissue, particularly muscle, can utilize a certain amount of acetone bodies for the production of energy, on which process insulin exerts little, if any, influence.¹

Ketone bodies and ketosuria are usually associated with the acidosis of diabetes mellitus. The association of a high sugar content of the blood with ketosuria was a logical sequence of the old theory of ketosis. Studies carried out by Waters, Fletcher and Mirsky,² using a

1. Mirsky, I. Arthur: The Etiology of Diabetic Acidosis, J. A. M. A. 118: 690 (Feb. 28) 1942.
2. Waters, E. T.; Fletcher, J. P., and Mirsky, I. A.: Am. J. Physiol. 122: 542, 1938

heart-lung preparation. when the amount of glucose and ketone bodies in the blood could be regulated at will, have shown conclusively that glucose is not necessary for the metabolism of ketone bodies. The fact that insulin can reduce ketosis and still not increase the utilization of ketone bodies in extrahepatic tissue leaves only the possibility that insulin prevents the formation of increased amounts of ketone bodies by the liver.

The liver of a diabetic animal is known to be depleted in glycogen; one explanation of the antiketogenic action of insulin is that the production of ketone bodies occurs whenever the liver is depleted of glycogen. This results in an increased fat metabolism and a resulting increase in ketone body formation. Somogyi² recently presented evidence that the feeding of carbohydrate to normal persons reduces the level of ketones of the blood. This effect is attributed to the fat and protein sparing effect of carbohydrates. When the body is burning carbohydrates it is not metabolizing as much fat, and a resulting decrease in ketone body formation results. Somogyi⁴ presents the thesis that the concentration of ketones in the blood is governed by four factors, two tending to increase it and two tending to reduce it. The factors which tend to increase the level of ketones of the blood are deglycogenation of the liver and decrease in the rate of ketone body utilization by the peripheral tissue. The factors which tend to decrease the level of ketones in the blood are increased utilization of carbohydrates by the liver and increased rate of utilization of ketone bodies by the peripheral tissue. These postulates are supported by Drey,⁵ who showed a transient ketosuria in association with aglucosuria in patients made hypoglycemic by overdoses of insulin. The concept is brought forth that insulin may be either ketogenic or antiketogenic. When insulin is given in such amounts that hypoglycemia results there is a reduction of the glycogen stores in the liver, since there is a tendency to maintain the glucose level of the blood. Concurrent with the low liver glycogen there is an increased metabolism of fat by the liver and a resulting ketonemia and ketosuria. On the other hand, if insulin is given in amounts sufficient to halt glycogenolysis there will be an increased carbohydrate utilization by the liver and a resulting decrease in fat oxidation, which will reduce the amount of ketone bodies produced. Thus, in man, ketonuria and aglucosuria may be present at the same time; it appears that ketonemia and ketosuria are normal physiologic responses to a lack of carbohydrate and an increased fat metabolism in the liver.

As more is known of the intermediary metabolism of foodstuffs, more precise knowledge will be had of both normal and pathologic metabolic processes. This will be of value to the clinician in the diagnosis and rational treatment of metabolic diseases.

THE ORIGIN OF VIRUS

In its restricted sense the term "virus" is applied to agents of disease which so far as known do not multiply in any medium other than living cells of a susceptible host and which pass through standard filters holding back bacteria. Burnet¹ has reviewed the speculations concerning the origin of viruses and their relations to other forms of life. One hypothesis assumes that viruses may be fragments from cells of high forms, footloose genes which have found ways of surviving by passage from host to host; definite evidence of any such process has not been advanced. Another possibility is that viruses are descendants of precellular forms of life which failed to survive except through the adoption of a strictly parasitic, intracellular existence. Filtrable saprophytes have been described the relationship of which to virus awaits investigation.

The dominant view of the origin of viruses is that they are degraded descendants of larger pathogenic microbes as suggested by the range of visible forms between bacteria and certain viruses. Rickettsias and the psittacosis viruses resemble bacteria in several ways, but their requirements for growth are those of viruses. In the case of the smallest viruses the resemblances to bacteria are not at all so striking. Other possible sources of viruses may be fungi, protozoa and spirochetes. This latest view of the origin of virus assumes that the loss of the power of chemical synthesis on part of the descendent units was associated with adaptation to an intracellular environment in which synthetic power is not required for indefinite survival in successive hosts. This implies that viruses, with as well as without vectors, like other living beings, have intricate evolutionary histories.

Burnet writes "We can state dogmatically that there is no evidence whatever that any virus, whether its host be animal, plant or bacterium, arises *de novo*. Every virus particle like any other organism derives by genetic descent from some similar particle and in its turn possesses the power to produce under appropriate conditions replicas of itself." Medical practice, public health work and present investigation are firmly based on the principle that virus diseases breed as true to type as other infectious diseases.

1. Somogyi, Michael: *J. Biol. Chem.* **145**: 575, 1942.

4. Somogyi, Michael, and Weichselbaum, T. E.: *J. Biol. Chem.* **145**: 567, 1942.

5. Drey, N. W.: *Ann. Int. Med.* **22**: 811 (June) 1945

1. Burnet, F. M.: *Virus as Organism: Evolutionary and Ecological Aspects of Some Human Virus Diseases*, Cambridge, Mass., Harvard University Press, 1945

Current Comment

CLASSIFIED ADVERTISING FOR VETERAN PHYSICIANS

At a recent meeting of the Board of Trustees of the American Medical Association in Chicago it was decided to offer without charge to every physician in the military service who was honorably discharged the opportunity to place a classified advertisement in the columns of *THE JOURNAL* devoted to this purpose. Such advertisements will be limited to one insertion of thirty-five words but may be devoted to the search for an assistantship or a residency, to a search for partnerships or space in an office, or to any of the other general headings listed regularly in the classified columns of *THE JOURNAL*. The advertisements will, of course, be limited by the same rules that now apply to all classified advertising. They will be inserted under the appropriate headings in this department of *THE JOURNAL*. The opportunity for such utilization of the classified advertising columns will continue until Dec. 31, 1945.

HEALTH EDUCATION AND VENEREAL DISEASE

The Army's experience with 8,000,000 men has provided an unusual opportunity to evaluate the effect of health education on the prevention of venereal disease. According to Larimore and Sternberg,¹ the Army venereal disease educational program has applied virtually all of the accepted technics of health education. During 1944 the amount of graphic educational material distributed among the troops amounted to 15,000,000 pieces, and film audiences totaled 10,000,000. The program of instruction followed two lines: (1) to impart technical knowledge about venereal disease and (2) to motivate the individual to utilize this information at the time needed for the avoidance of venereal disease. Certain principles have been found essential for the successful use of education. Chief among these are (a) an integrated program, (b) the highest possible quality and attractiveness of all educational materials, (c) abandonment of the pedagogic concept of health education and substitution of a new approach of "health advertising," (d) avoidance of overemphasis of sex and (e) technical accuracy of all materials. It was easier to impart technical knowledge than to motivate the individual to utilize it. The following factors in motivation have been employed and have been found to be effective: fear, intelligence, pride, patriotism. Among the reasons for failure of motivation were (a) the nature of the sex urge itself, (b) "education for venereal disease" afforded by sexy motion pictures, comic strips, pin-up girls and the use of sex in certain advertising,

(c) "war psychology," (d) displacement of normal family and social relationships, (e) newer methods of treatment, (f) alcohol and (g) the state of morale. The strictly moral approach to the problem of avoiding venereal disease has been relatively ineffective in the Army. In measuring the results of the program, the authors state that the best single criterion is the extent of utilization of prophylaxis, which at the present time is at the rate of more than fifty million individual prophylactic items per month.

SEMEN ANALYSIS AND MALE FERTILITY

The discovery of a cause for sterility in the wife constitutes insufficient evidence for attributing the reason for the sterile marriage to that partner exclusively. As pointed out by Harvey and Jackson¹ after an extensive study of the value of semen analysis in the assessment of male fertility, both partners are involved in a high proportion of sterile marriages. Only when the husband's semen is fully examined and classified can this factor of subfertility in the male partner be appropriately evaluated. This report from the Exeter Sterility Clinic in England indicates that there are four main factors in semen analysis which influence fertility. For one of these—density—they believe that a figure of 50 million sperm per cubic centimeter can be accepted as a reasonably satisfactory minimum with the technic employed. The morphology of the sperm is also important; abnormalities can occur in the head, middle piece or tail. Abnormal morphologic types may appear in the seminal fluid as a result of imperfect spermatogenesis, arrest of spermateliosis at an early stage with premature detachment from the germinal epithelium, or degeneration of originally normal sperm. Harvey and Jackson describe a technic by which the percentage of fully motile and feebly motile sperm can be readily calculated. By observing the rate of decreasing motility at various intervals, the viability of sperm can be expressed in a manner which also permits fertility to be roughly graded. Whether density or total sperm count gives the better index of fertility is uncertain. The authors believe that male subfertility does not become of primary importance unless the results of the semen analysis fall below minimal values in all four of these criteria. The Exeter report is based on analysis of the semen of 324 husbands of subfertile marriages, in 236 of whom the examinations were carried out according to the detailed methods described in the paper. The technics are so complex that they cannot be readily duplicated in a physician's office; considerable equipment and expert technical skill are necessary. This work and others of a like nature, however, furnish important basic knowledge on the factors involved in the treatment of the sterile or subfertile marriage.

1. Larimore, Granville W., and Sternberg, Thomas H.: Does Health Education Prevent Venereal Disease? *Am. J. Pub. Health* 35: 799 (Aug.) 1945.

1. Harvey, Clare, and Jackson, Margaret Hadley: Assessment of Male Fertility by Semen Analysis, *Lancet* 2: 99 (July 28), 134 (Aug. 4) 1945.

MEDICINE AND THE WAR

ARMY

SAFE AND EFFICIENT USE OF DDT

A bulletin was recently published by the Army as a technical guide for the safe and efficient use of DDT. The publication contains information on the precautions to be taken in handling DDT, its mode of action in insect control and the proper methods of application.

It is emphasized that, although DDT may be safely handled as an insecticide, it is nevertheless a toxic material. Poisoning may occur from ingestion of DDT solutions through the skin. DDT powder and aerosols are not absorbed through the skin and have been found to produce no ill effects when inhaled in small amounts. However, in conditions in which air currents do not carry away the dust from the user, it is wise to wear suitable respirators as protection against excessive inhalation.

DDT acts on insects both as a contact poison and as a stomach poison. Studies have shown that the poisonous effect of DDT on mosquito larvae is fully as powerful as that on the adult insect, although on some other insects, such as flies, the larvae are not equally affected by the insecticide. For the extermination of insects such as ants, roaches, fleas, bedbugs and flies, DDT oil solution or powder should be used, with particular attention to cracks, holes and seams in walls, floors and bedding, as indicated. One of the most valuable characteristics of DDT lies in its tendency to remain deadly to insects over a prolonged period. In applying DDT solutions to walls and other large surface areas, a coarse spray is usually employed, but in applying it to screens or mesh surfaces ordinary paint brushes may be used. Although the effectiveness of the treated areas against insects persists for some time, the insects which come in contact with the chemical may not die until an hour or more has elapsed, and immediate death should not be expected.

Although rapid progress has been made in the development of DDT since it first made its appearance in the field of science, much remains to be learned before its full potentialities in insect control can be realized. Investigation is continuing on every aspect of DDT, however, in search of new and extensive improvements in everything from its chemical beginning to its final application in the field.

MERITORIOUS SERVICE UNIT AWARD

The Meritorious Service Unit Award was recently given to the 25th AAF Base Unit (AAF Medical Service Training School), Robins Field, Ga., "for outstanding devotion to duty in the performance of exceptionally difficult tasks during the period Nov. 10, 1944 through May 31, 1945. During this period," said the citation, "the personnel of the 25th AAF Base Unit performed in an outstanding manner in accomplishing its mission of casual and unit training. In addition; this unit greatly contributed to furthering medical training and sanitation for the Army Air Forces by preparing many unique training aids and devices. The high standard of discipline and superior performance of duty displayed by the members of the 25th AAF Base Unit reflect highest credit on the organization and the Army Air Forces of the United States." Lieut. Col. Norbert B. Reicher, M. C., Syracuse, N. Y., is the commanding officer of the school, and Major Thomas E. Rardin, M. C., Columbus, Ohio, the director of training.

DENTAL CORPS OFFICER AWARDED

Members of the Army Nurse Corps have been awarded 1,008 decorations since Dec. 7, 1941, 2 Distinguished Flying Crosses (one posthumous award), 4 Silver Stars for gallantry in action (one posthumous award), 12 Legion of Merit awards, 433 Bronze Stars or Oak Leaf Clusters in lieu thereof, 388 Air Medals or Oak Leaf Clusters in lieu thereof, 5 Soldier's Medals and 60 Purple Hearts (15 posthumous), 103 unit citations or recommendations having been reported to date.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel James E. Kendrick

The Air Medal and the Bronze Star were recently awarded to Lieut. Col. James E. Kendrick, formerly of Greenville, Ala., for service with the 10th Air Force, of which he was assistant staff surgeon and then staff surgeon. The citation which accompanied the Air Medal stated that "on April 6, 1944 Lieutenant Colonel Kendrick volunteered for a hazardous type of flight in an amphibious aircraft to the Bay of Bengal. At the time he knew that this flight would go considerable distance along the coast of enemy territory and that the type of aircraft in which he was flying was subject to easy interception. This aircraft landed and took aboard 9 injured members of a combat crew, to whom Lieut. Col. Kendrick gave medical treatment. His conduct reflects great credit on himself and the Army Air Forces." Accompanying the Bronze Star was a citation "for meritorious service from Nov. 11, 1943 to Aug. 7, 1944. As assistant staff surgeon and later staff surgeon of the 10th Air Force, Lieutenant Colonel Kendrick rendered such exceptional service, in the conduct of medical matters as to improve substantially the standards of health and sanitation within this command. By his constant display of industry and medical knowledge the morale and operations of the 10th Air Force were benefited in a high degree. His meritorious service reflects credit on himself and on the Army Air Forces of the United States." Dr. Kendrick graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1933 and entered the service Jan. 28, 1941.

Major Israel Weinstein

Major Israel Weinstein, formerly of New York, was recently awarded the Bronze Star "for meritorious service in combat from March 11 to May 8, 1945 in France, Germany and Austria. As division medical inspector Major Weinstein gave unstintingly of his effort to supervise the health and sanitation of front line troops. He unhesitatingly and with complete disregard of his own safety rode through woods occupied by enemy snipers to reach his destination. On April 26 on the north shore of the Danube between Regensburg and Donauwörth, while on his way to see that a satisfactory water point was set up for an advanced detachment of soldiers, he came under heavy mortar fire. Both he and his driver were wounded. His first concern was to give medical aid to the wounded driver. Major Weinstein's ceaseless effort in guarding the health and welfare of the troops has brought credit to himself and reflects the highest tradition of the armed forces." Dr. Weinstein graduated from Columbia University College of Physicians and Surgeons, New York, in 1926 and entered the service Aug. 28, 1942.

Lieutenant Colonel Earle I. Greene

Lieut. Col. Earle I. Greene, formerly of Chicago, was recently awarded the Bronze Star "for meritorious service in connection with military operations as chief of surgical service, 35th Station Hospital, European Theater of Operations, from July 15, 1943 to May 8, 1945. By virtue of his professional qualifications, his superior effort and insistence on maximum performance, Lieutenant Colonel Greene was responsible for the establishment of a surgical service in which the highest professional standards prevailed. During one emergency he personally operated on the more seriously wounded for seventy-two successive hours and saved many lives. His professional judgment has been admirably coupled with extreme devotion to duty and tireless energy, leading to the increased welfare and recovery of several thousand patients." Dr. Greene graduated from Rush Medical College, Chicago, in 1923 and entered the service Feb. 15, 1942. He is at present attached to the surgical service of the 120th Station Hospital.

Colonel Martin E. Griffin

Col. Martin E. Griffin, Washington, D. C., was recently awarded the Legion of Merit for his direction of medical supply activities in Italy. As director of the medical supply branch, public health subcommission, Allied Commission, Colonel Griffin was responsible for the planning, organization and application of medical supply techniques from Jan. 1, 1944 to July 31, 1945. The citation said, in part, "Despite the handicap of limited equipment and personnel, Colonel Griffin installed a medical supply system for the Italian civilian population and established numerous medical supply depots throughout Italy. In addition he reestablished production in several Italian pharmaceutical plants, which resulted in a constantly available supply of drugs and serums to combat many dangerous and infectious diseases." Dr. Griffin graduated from the State University of Iowa College of Medicine, Iowa City, in 1925 and entered the service July 1, 1926. In recognition of his services to the Italian government, Dr. Griffin was recently awarded the Cross of Knight Commander, Order of the Crown of Italy, by Crown Prince Umberto.

Lieutenant Colonel Roy V. Boedeker

Lieut. Col. Roy V. Boedeker, formerly of St. Louis, was recently awarded the Bronze Star for meritorious achievement in connection with military operations in the Mediterranean Theater of Operations from Oct. 27, 1943 to March 11, 1945. The citation accompanying the award reads, in part, "As assistant chief of the surgical service of the 70th General Hospital, Lieutenant Colonel Boedeker demonstrated superior performance of outstanding services under the most trying conditions in both North Africa and Italy. The efficiency of the policies inaugurated by the technical and organizational ability of Lieutenant Colonel Boedeker early in the establishment of the hospital were the basis on which all departments of the surgical service operated with maximum effectiveness. Because of the wide range of his military experience, Lieu-

tenant Colonel Boedeker was frequently assigned such tedious tasks as trial judge advocate, summary court officer and plans and training officer and administered the duties involved in each in an outstanding manner, reflecting credit on himself and on the military service." Dr. Boedeker graduated from St. Louis University School of Medicine in 1935 and entered the service July 29, 1941.

Major Morris L. Grover

Major Morris L. Grover, formerly of Providence, R. I., was recently awarded the Bronze Star "for meritorious service in connection with military operations against an enemy of the United States from April 2, 1945 to May 8, 1945 in Germany. Major Grover, division medical inspector, performed his duties in an outstanding manner. Through his professional skill and constant perseverance, disease epidemics were prevented from spreading in stockades peopled by thousands of enemy prisoners of war and displaced persons. On frequent occasions Major Grover disdained enemy fire to assure the maintenance of supply discipline in relation to medical material. The meritorious service of Major Grover is in keeping with the highest traditions of the armed forces." Dr. Grover graduated from Tufts College Medical School, Boston, in 1928 and entered the service Sept. 20, 1941.

Captain Robert Blatherwick

The Bronze Star was recently awarded to Capt. Robert Blatherwick, formerly of Van Hook, N. D. According to the citation accompanying the award, "as assistant American surgeon at the Szubin, Germany, prisoner of war camp from October 1944 to January 1945 he displayed marked devotion to duty and high professional skill in conserving the health and improving the well-being of many hundreds of American officer prisoners of war." Dr. Blatherwick graduated from Northwestern University Medical School, Chicago, in 1943 and entered the service July 13, 1943.

MISCELLANEOUS**DRS. BLAKE AND MAXCY RECEIVE
TYPHUS AWARD**

The United States of America Typhus Commission Medal was awarded at the Office of the Surgeon General, September 10, to Dr. Francis G. Blake, dean of Yale University School of Medicine, and Dr. Kenneth F. Maxcy, professor of epidemiology at Johns Hopkins School of Hygiene and Public Health, for "exceptionally meritorious service." Both Dr. Blake and Dr. Maxcy, in addition to their other duties, are consultants to the Secretary of War.

The citation accompanying the award to Dr. Blake said, in part, "Dr. Blake initiated and directed investigations of classic importance on the clinical features and prevention of scrub typhus. He made new contributions to the knowledge and control of a form of typhus fever of great military and civilian importance. His wisdom, energy and special competence assured the success of this mission and laid the basis for enduring benefits."

Dr. Maxcy was commended for "his observations made in the field under difficult campaign conditions, which clarified earlier knowledge of the conditions under which this disease occurs and added greatly to information about the special conditions which were making this disease a health hazard of paramount importance to American troops."

lems he has encountered. On September 20 the Limb Manufacturers were represented and the medical director of the Disabled American Veterans made a further presentation for that organization.

**UNRRA AND GREEK GOVERNMENT
PLAN FEEDING CENTERS**

A special plan with UNRRA and the Greek government for the feeding of 1,000,000 people was recently dispatched to the headquarters of the United Nations Relief and Rehabilitation Administration. The feeding plan calls for assisting children from birth to 16 years of age and nursing mothers, and the feeding centers are to be established through the country.

These feeding centers will be administered by the Patriotic Foundation, with a general committee in charge. In order to provide a well balanced meal of 600 calories a day, UNRRA will supply the basic food. Meanwhile the Greek War Relief Association will supplement this with other specially imported foods and with local produce purchased out of a sum of \$1,370,000 set aside for this purpose.

The idea is not merely to feed the children and mothers 600 calories a day but to insure that they get a diet rich in vitamins and minerals to overcome the effects of malnutrition from which they are suffering. In order to enrich these diets three trained dietitians, under the supervision of UNRRA, have already gone into the provinces. These experts will train local cooks in the use of the basic foods supplied by UNRRA, so that they may be adapted to Greek recipes and prepared so as to preserve their nutriment.

To carry out this project, a large staff of competent personnel will be required. This will include 11 UNRRA regional representatives, who will act as liaison officers and advise the 39 provincial supervisors, 120 assistant supervisors and 35 clerical assistants, all local personnel, whose salaries will be paid by the Greek War Relief Association.

AID TO PHYSICALLY HANDICAPPED

Augustine B. Kelley, chairman of the Committee on Labor's Subcommittee on Aid to Physically Handicapped, recently announced a continuation of hearings on the problems of persons who have suffered amputations. The hearing on September 19 included a round table discussion between members of Congress and patients from the Walter Reed Hospital Amputation Center. The War Department showed a film, and a civilian wearer of an artificial limb discussed some of the prob-

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Name	Rank	Address	Name	Rank	Address
Alabama			Illinois		
Connell, Isce L., Major, P. O. Box 44, Grove Hill.			Berg, George S., Capt., 3504 N. Hamlin Ave., Chicago.		
Jordan, John S., Major, 5316 7th Court South, Birmingham.			Cohen, Jacob, Capt., 1532 Niedringhaus Ave., Granite City.		
Newman, Lucian, Major, Dadeville.			Coniglio, Bernard L., Capt., 209 N. Harvey Ave., Oak Park.		
Shelton, James B., Lt. Col., 1820 Exeter Ave., Bessemer.			Cress, Henry N., Capt., 3149 Ellis Ave., Chicago.		
Tocker, Alfred M., Capt., Hillman Hosp., Birmingham.			Dominski, Anthony V., Capt., 3225 Sunnyside Ave., Brookfield.		
Arkansas			Durr, Samuel P., Capt., 1306 22d Ave., Rock Island.		
Burton, Francis M., Major, 711 Prospect Ave., Hot Springs.			Grier, James P., Lt. Col., 2449 Marcy Ave., Evanston.		
Hughes, Max, Capt., Hoxie.			Hodges, Harry D., Capt., 1719 W. 105th Pl., Chicago.		
California			Hoffman, John M., Capt., 5316 Drexel Ave., Chicago.		
Clark, Albert G., Lt. Col., 667 Los Palmas Dr., San Francisco.			Hughes, Mark J., Major, Grand Tower.		
Ghormley, Vern G., Lt. Col., 912 Vassar, Fresno.			Karabin, John E., Major, 1402½ Central St., Evanston.		
Gray, Earl H., Lt. Col., 618 College St., Woodland.			Loeff, Harold M., Capt., 5611 Kenmore Ave., Chicago.		
Jones, Samuel A., Capt., 4069 Cromwell Ave., Los Angeles.			McCready, Robert B., Major, 8737 S. Racine Ave., Chicago.		
Kibby, Sydney V., Lt. Col., 1144 Elizabeth St., Pasadena.			Oxman, Emanuel M., Capt., 100 E. Jeffery St., Kankakee.		
Nelson, Hiram M., Major, 115 Main St., Barstow.			Pearson, Emmet F., Lt. Col., Route 3 Lake, Springfield.		
Owyang, Edwin, Major, 1103 Stockton St., San Francisco.			Romanski, Arthur F., Capt., 2332 S. Highland Ave., Berwyn.		
Peck, Samuel G., Major, 809 N. Main St., Santa Ana.			Sazama, Francis J., Major, 2421 S. 61st Ave., Cicero.		
Rice, Arthur H., Major, 1870 Thousand Oaks Blvd., Berkeley.			Shagam, Robert M., Capt., 5477 Everett Ave., Chicago.		
Rosson, C. T. Jr., Major, 402 W. Grangeville Rd., Hanford.			Siebert, Rudolph B., Lt. Col., 604 E. 3d St., Pana.		
Schindler, Meyer, Major, 3701 Divisadero St., San Francisco.			Singer, John D., Major, 6439 N. Bell Ave., Chicago.		
Schwartz, Alfred J., Lt. Col., 63 Yolanda Dr., San Anselmo.			Stuteville, Orion H., Major, 708 Church St., Evanston.		
Seibly, Robert C., Major, 312 N. Boyle, Los Angeles.			Tavener, John L., Capt., 1001 S. Galena St., Dixon.		
Sherertz, Richard C., Major, 302 Orange Ave., Modesto.			Teborek, Roy F., Capt., 1500 S. Keeler Ave., Chicago.		
Sicherman, Karl L., Major, 5702 Harold Way, Hollywood.			Telford, Elbridge W., Major, 364 Rolfe Rd., DeKalb.		
Soderstrom, Edwin M., Major, 49 22d St., Merced.			Thompson, Neill A., Capt., State St., Eldorado.		
Soghor, Samuel, Capt., 658 S. Bonnie Brae St., Los Angeles.			Twooules, George D., Capt., 1703 W. Madison St., Chicago.		
Sprague, N. F. Jr., Major, 1506 Lexington Rd., Beverly Hills.			Whitmer, Ralph G., Major, 230 N. Oak Park Ave., Oak Park.		
Stark, James A., Capt., 892 Willow St., Alameda.			Indiana		
Stephens, H. B., Lt. Col., 17 Van Andreas St., San Francisco.			Acher, Robert P., Capt., R. R. 1, W. Terre Haute.		
Stiles, Frank E., Lt. Col., 1458 24th Ave., San Francisco.			Brown, Harry M., Capt., R. R. 1, Cicero.		
Whitaker, Joseph L., Major, 1830 Flower St., Bakersfield.			Dietl, Ernest L., Major, 1037 Hudson Ave., South Bend.		
Zinschlag, Edward N., Capt., 429 Sappington, Glendale.			Keeling, Forrest E., Col., 321 E. Race St., Portland.		
Connecticut			Marsh, George W., Capt., Otterbein.		
Hess, Orvan W., Capt., Old Orchard Rd., North Haven.			Norwick, Sydney S., Capt., 1621 S. East St., Indianapolis.		
Nevulis, Anthony V., Major, 248 Chestnut St., New Britain.			Parke, Delmar D., Capt., General Delivery, Lizton.		
Reiter, Benjamin R., Major, 278 Old Mill Rd., Fairfield.			Pierson, Robert H., Capt., 348 N. Main St., Spencer.		
Skreczko, Charles K. Jr., Major, 94 Wooster St., Shelton.			Ramsey, Hugh S., Capt., 612 E. University St., Bloomington.		
District of Columbia			Sedam, Herbert L., Major, 2429 N. Alabama St., Indianapolis.		
Crain, Darrell C., Major, 1619 Roxanna Rd., Washington.			Sennett, William K., Major, 320 S. Monticello St., Winamac.		
Lombard, P. N., Capt., 1313 Potomac St. N.W., Washington.			Somers, Gerald H., Capt., 3814 S. Calhoun St., Ft. Wayne.		
McGuire, John F., Capt., 220 11th St. S.W., Washington.			Venis, Nihil K., Capt., 502 Waid Ave., Muncie.		
Nickens, James H., Capt., 734 Gresham Pl. N.W., Washington.			Woner, John W., 1st Lt., 84 N. Main St., Linton.		
Plessinger, Virgil A., Lt. Col., 6501 14th St. N.W., Washington.			Iowa		
Selinger, Maurice A., Col., 1150 Connecticut Ave., Washington.			Burgeson, Floyd M., Capt., Des Moines.		
Florida			Courter, Willard O., Major, P. O. Box 515, Springfield.		
Essrig, Irving M., Major, 2301 Morgan St., Tampa.			Pearlman, Leo R., Major, 2136 Lyon St., Des Moines.		
Freeman, James V., Major, 2005 Park St., Jacksonville.			Redmond, James J., Major, 819 Higley Bldg., Cedar Rapids.		
Morin, Henri G., Capt., 3610 Foster Hill Dr., St. Petersburg.			Schaeferle, Lawrence G., Capt., Garwin.		
Peavy, Henry J. Jr., Major, 200 S.E. 13th St., Ft. Lauderdale.			Shonka, Thomas E., Capt., Malvern.		
Shaw, Vaughan A., Major, Woolworth Bldg., Daytona Beach.			Smith, Elmer M., Lt. Col., State Center.		
Weil, Nathan Jr., Lt. Col., 2061 Forbes St., Apt. 4, Jacksonville.			Swift, Charles H. Jr., Major, Marcus.		
Whitney, Karl R., Capt., 933 B. Oleander Ave., Daytona Beach.			Thatcher, Wilbur C., Capt., 1413 10th Ave., N., Fort Dodge.		
Georgia			Trueblood, Clare A., Capt., 906 N. C., Indianola.		
Floyd, Thomas J. Jr., Major, 232 W. Taylor St., Griffin.			Van Besien, George J., Capt., 509 Winneshiek Ave., Decorah.		
Head, Homer, Capt., Box 111, Dahlonega.			Van Werden, Benjamin DeK., Capt., 1701 Blondeau, Keokuk.		
Heath, William H. Jr., Capt., Grady Hos., Atlanta.			Wilcox, Keith E., Capt., 1623 W. 16th St., Sioux City.		
Holliday, Henry C., Capt., Southern Mutual Bldg., Athens.			Kansas		
Houser, Frank W., Major, Rochelle.			Grove, W. E., Capt., Axtell Clinic, 209 E. Broadway, Newton.		
James, Lemuel P. Jr., Major, Soperton.			Hall, Frederic W., Major, 1716 Millington, Winfield.		
Joiner, Hartwell, Major, 557 E. Spring St., Gainesville.			Ryan, Michael J., Capt., 609 N. 17th St., Kansas City.		
Iustice, Frank K., Lt. Col., Atlanta.			Siebert, Norman C., Capt., Canada.		
Morris, Henry B., Major, Maysville.			Simpson, James C., Major, 308 W. South, Salina.		
Nicholson, James H., Col., Madison.			Smiley, Edward A., Capt., Schwartz Apts., Junction City.		
Parish, Frank M., Capt., 711 Union St., Brunswick.			Snyder, Maurice, Lt. Col., 108 Overhill Rd., Salina.		
Parker, Francis P., Lt. Col., 1685 W. Wesley Rd., Atlanta.			Songer, Herbert L., Capt., Lincoln.		
Russel, Alexander B., Lt. Col., Route 2, Winder.			Kentucky		
Stone, Charles F. Jr., Capt., 93 Sheridan Dr., Apt. 4, Atlanta.			Holtzclaw, Morris R., Lt. Col., Main St., Somerset.		
Talmadge, Sam M., Major, 1237 Prince Ave., Athens.			Murphy, Owen B. Jr., Major, 801 E. Main St., Lexington.		
Tarplee, Scott L., Lt. Col., 125 Palisades, Atlanta.			Noe, Joseph T., Major, Wheelwright.		
Wasden, Charles N., Lt. Col., 904 Vineville Ave., Macon.			Ockermann, Kenneth R., Capt., 605 Marshall Ct., Louisville.		
Weeks, R. B., Lt. Col., Pine Needle Rd., Forest Hills, Augusta.			Robbins, James S., Major, S. 1st St., Mayfield.		
Wilkes, William A., Capt., University Hosp., Augusta.			Salmon, James L., Col., Closplint.		
			Schneider, Bernard, Major, 1801 Algonquin Pky., Louisville.		
			Snider, Dixie E., Capt., 1118 Bardstown Rd., Louisville.		
			Wathen, Charles B., Capt., Morganfield.		

PHYSICIANS SEPARATED FROM SERVICE

Name	Rank	Address	Name	Rank	Address
Louisiana			Missouri		
Albritton, Andrew S., Major, Charity Hosp., New Orleans.			Grosdidier, Edward J., Capt., 401 N. 19th, Kansas City.		
Elkins, Oliver W., Major, Junction City.			Nixon, Edward E., Capt., Gallatin.		
Kuntz, William M., Capt., Charity Hosp., New Orleans.			Passanante, Bartholomew M., Major., 6301 Cates, Univ. City.		
Lambert, Lamar L., Major, 3127 Maurepas St., New Orleans.					
Odom, Charles B., Col., 1521 Delachaise St., New Orleans.			New Hampshire		
Witherington, Albert S. Jr., Major, Dequincy.			Bogle, James G., Major, 13 Main St., Littleton.		
			Flynn, Timothy P., Major, Lancaster.		
Massachusetts			McVetty, Rufus H., Major, North Stratford.		
Anderson, Fred A., Capt., 61 Hastings St., West Roxbury.			Wilson, William J. Jr., Capt., 88 E. Broadway, Derry.		
Angelo, Peter, Capt., Box 244, Barnstable.					
Bradley, Joseph J., Major, 61 Pine St., Belmont.			New Jersey		
Burgin, Leo B., Major, 147 Kent St., Brookline.			D'Addario, Anthony R., Major, 132 Broadway, Newark.		
Currier, Donald E., Col., 1558 Mass. Ave., Cambridge.			Fratantuno, Michael J., Capt., 152 W. Market St., Newark.		
Damiani, Clito R., Capt., 142 Crafts St., Newtonville.			Haggerty, Francis F., Capt., 724 Hudson St., Hoboken.		
Hoerr, Stanley O., Major, 159 Kent St., Brookline.			Hull, Donald B., Capt., 88 W. Ridgewood Ave., Ridgewood.		
Kendall, Lee G., Lt. Col., 198 Union Ave., Frammingham.			Johnson, George L. Jr., Lt. Col., 390 Booth Ave., Englewood.		
Levinson, Samuel S., Lt. Col., 153 Salem St., Malden.			Kosminsky, Louis, Capt., 30 W. Edsall Blvd., Palisade Park.		
Limauro, Ulysses D., Captain, 64 Eastern Ave., Lynn.			Morton, Paul C., Col., 76 Dwight Pl., Englewood.		
Mulcahy, Richard E., Capt., 20 Donizetti St., Wellesley.			Paris, William, Major, 518 E. 25th St., Paterson.		
Nash, William C., Major, 15 Webber St., Beverly.			Ross, Selig J., Lt. Col., 15 Homewood Ave., Allendale.		
Pierce, Frank R., Major, 88 Woodland Ave., Gardner.			Schlossman, Howard H., Capt., 176 Palisade Ave., Jersey City.		
Pratt, Henry N., Col., 66 Laurel Rd., Chestnut Hill, Brookline.			Schwab, George P., Capt., 921 19th St., Union City.		
Prigot, Aaron, Major, 235 Humboldt Ave., Roxbury.			Smith, Alan L., Capt., 32 Washington St., East Orange.		
Quigley, Thomas B., Lt. Col., 124 Commonwealth Ave., Boston.			Sordill, Anthony, Major, 18 Fidelity Pl., Monclair.		
Ross, James K., Major, Camden and Ohio Sts., Salisbury.			Stamps, George R., Major, 300 E. Verona Ave., Pleasantville.		
Rowell, F. A. Jr., Major, 1056 Commonwealth Ave., Boston.			Sulouff, David B., Major, 6 Druid Hill Rd., Summit.		
Settlage, Arnold F. E., Capt., 244 High St., Newburyport.			Velluzzi, Joseph F., Capt., 311 Ave. "C," Bayonne.		
Sheldon, Charles P., Col., 67 Dedham St., Newton Highlands.			Vilardo, William, Capt., 125 Harrison Ave., Garfield.		
Shuman, Harold I., Capt., 54 Babcock St., Brookline.			Yontef, Reuben, Major, 659 Ave. C., Bayonne.		
Smedal, Magnus I., Lt. Col., 150 Moffat Rd., Waban.					
Sullivan, Frederick J. Jr., Major, 55 Bigelow St., Fall River.			New Mexico		
Swinton, Neil W., Lt. Col., 41 Wamesit Rd., Waban.			Stark, Walter A., Major, 513 Friedman Ave., Las Vegas.		
Teed, Roy W., Capt., 24 Congress, Milford.					
Thorp, Edward G., Lt. Col., 79 Lincoln St., Melrose.			New York		
Tvadelde, Frank J., Capt., 3 Atwood St., Wellesley.			Bagner, Alan B., Capt., 3506 72d St., Jackson Heights, L. I.		
Wexler, Jacob, Capt., 421 Warren St., Roxbury.			Barysh, Noah, Lt. Col., 9214 Ridge Blvd., Brooklyn.		
Williams, John W., Major, 110 N. Shelby, Greenville.			Bell, Murray F., Major, 98-76 Queens Blvd., Forest Hills.		
			Benedetto, Francis M., Capt., 1364 Lexington Ave., New York.		
Michigan			Blalock, G. R., Lt. Col., Neurological Hosp., Welfare Island.		
Babcock, Kenneth B., Major, 20171 Renfrew, Detroit.			Bobbett, Gordon H., Major, 196-Owasco Rd., Auburn.		
Cameron, D. A., Major, 324 E. Grand River Ave., Brighton.			Bolognino, Leonard R., Capt., 37 Church St., Amsterdam.		
Damstra, Harold J., Major, 1022 Santa Cruz Dr., Grand Rapids.			Brane, Charles M., Major, 35-20 77th St., Jackson Heights, L. I.		
Davis, Lindon L., Capt., 631 Seldon Ave., Detroit.			Breed, James R., Major, Andrews Pl., Wayzingers Falls.		
Doyle, Fred M., Capt., 3240 Bronson Blvd., Kalamazoo.			Carlozzi, Michael, Capt., 4712 11th Ave., Brooklyn.		
Hammer, Carl W., Capt., 15 Hudson St., Oxford.			Clemente, Louis J., Major, 1834 Caton Ave., Brooklyn.		
Maddock, Walter G., Col., University Hosp., Ann Arbor.			De Grandpre, Arthur B., Major, 167 Margaret St., Plattsburg.		
Marshall, Don, Major, 2344 Sheffield Dr., Kalamazoo.			De Luca, Louis, Major, 353 Manhattan Ave., Brooklyn.		
Martin, Richard D., Capt., 1486 Collingwood, Detroit.			DeVita, Jacob, Capt., 255 Saratoga Ave., Brooklyn.		
Munslow, Ralph A., Major, 7610 Byron St., Detroit.			Dorman, Gerald D., Lt. Col., 45-41 Delafield Ave., Bronx.		
Nelson, Victor E., Major, 13387 Mark Twain, Detroit.			Eisenberg, David S., Major, Pt. Byron.		
Olmsted, Kenneth L., Capt., 131 N. Hanchett St., Coldwater.			Fischetti, Donato P., Capt., 27 Winthrop St., Brooklyn.		
Power, Frank H., Lt. Col., Univ. Hosp., Ann Arbor.			Fry, Franklin W., Major, 64 St. James St., S. Garden City, L. I.		
Rehner, Robert C., Capt., University Hos., Ann Arbor.			Gaynor, W. C., Lt. Col., 143 S. Main St., Southampton, L. I.		
Ross, Ben C., Major, 18980 Roselawn Ave., Detroit.			Goldstein, Solomon I., Capt., 5501 Tilden Ave., Brooklyn.		
Ryan, John A., Capt., University Hos., Ann Arbor.			Gosse, Maxwell, Major, 96 S. Hamilton St., Poughkeepsie.		
Sharp, Mahlon S., Major, Woman's Hosp., Detroit.			Gover, Douglas M., Capt., 351 Parkside Ave., Buffalo.		
Shaw, Robert R., Lt. Col., Univ. of Mich., Ann Arbor.			Greenberg, M. W., Major, 1150 Brighton Beach Ave., Brooklyn.		
Sheldon, John P., Major, 104 S. Clay St., Sturgis.			Haft, Albert J., Capt., Queens Gen. Hosp., Jamaica.		
Spalding, Edward D., Lt. Col., 214 Cloverly Rd., Detroit.			Halperin, Barnet, Major, 26A Woodbine St., Brooklyn.		
Stevenson, E. L., Capt., Ionio State Hosp. (Box 494), Ionia.			Hatch, Glenn C., Capt., 123 North Ave., Penn Yan.		
Towsley, Harry A., Lt. Col., 1000 Berkshire Rd., Ann Arbor.			Hoffman, Floyd W., Major, Main St., Romulus.		
Walker, Enos G., Lt. Col., 1402 Field Ave., Detroit.			Holstein, Aaron L., Major, 1748 Undercliff Ave., New York.		
Wynes, Maurice C., Capt., 1124 Federal Ave., Saginaw.			Kassab, J., Capt., Recon. Hosp., 395 Central Pk. W., New York.		
			Kelleher, Vincent R., Lt. Col., 15 Bridge St., Ft. Edward.		
Minnesota			Kempner, Ivan, Major, 1609 Union St., Brooklyn.		
Barr, Robert N., Lt. Col., 1912 E. River Terrace, Minneapolis.			Kiel, Joseph B., Capt., 702 44th St., Brooklyn.		
Earl, John R., Major, 937 Lincoln Ave., St. Paul.			Knapp, George M., Lt. Col., 4 Cambridge Ct., Larchmont.		
French, Lyle A., Major, 317 Union St. S.E., Minneapolis.			Kopet, Sidney J., Capt., 297 Marcy Ave., Brooklyn.		
Hay, Lyle J., Major, 93 Orlin St. S.E., Minneapolis.			Krentz, Benjamin E., Major, 1695 Grand Ave., New York.		
Head, Douglas P., Major, 1782 Fremont Ave., S. Minneapolis.			Krull, Bernard A., Capt., 1995 E. 3rd St., Brooklyn.		
Lindgren, Russell C., Major, 3440 Portland Ave., Minneapolis.			Lampka, Victor B., Major, 935 Walden Ave., Buffalo.		
Paine, John R., Lt. Col., Univ. of Minn. Hosps., Minneapolis.			Lavalle, Lawrence L., Major, 45 Lenox Rd., Brooklyn.		
Plimpton, Nathan C., Capt., Mayo Clinic, Rochester.			McClintock, J. C., Major, 1621 New Scotland Rd., Slingerlands.		
Quick, David W. Jr., Capt., Co. 1774 CCC, Bayport.			Maloney, Paul K., Major, 59 Richmond St., Brooklyn.		
Rinke, Eugene, Capt., Redwood Falls.			May, Conrad G., Major, 269 Colvin Ave., Buffalo.		
Ritchie, Wallace P., Major, 917 Lowry Bldg., St. Paul.			Messina, Domenic S., Major, 146 Schiller St., Buffalo.		
Sather, Russell O., Lt. Col., 220 S. Broadway, Crookston.			Mott, Walter C., Major, 103 Lenox Ave., Albany.		
Stafford, Charles E., Capt., Daudette.			Norton, William S. 2d, Lt. Col., 111 E. 78th St., New York.		
Winship, Theodore, Major, 107 N. 5th Ave., Virginia.			Onorato, Angelo R., Capt., 184 Elm St., Yonkers.		
			Onorato, Robert R., Capt., 2740 Main St., Buffalo.		

PHYSICIANS SEPARATED FROM SERVICE

Name	Rank	Address	Name	Rank	Address
New York—Continued			Ohio—Continued		
Padykula, Stanley G., Major, 1903 Watson Blvd., Endicott.			Taylor, David, Major, 112 Glen St., Yellow Spring.		
Palmer, John R., Major, 7 Gracie Sq., New York.			Thomas, Max S., Major, 19 Hurlburt, Akron.		
Patterson, Howard A., Lt. Col., 107 E. 67th St., New York.			Tingwald, F. L. R., Capt., Youngs. Hosp. Assn., Youngstown.		
Pick, Theodore, Capt., 245 E. 72d St., New York.			Toth, Daniel F., Major, 11622 Buckeye Rd., Cleveland.		
Privitera, Anthony T., Major, 1732 Bogart Ave., Bronx.			Turel, Stanley E., Capt., 11420 Lorain Ave., Cleveland.		
Quackenbush, William R. S., Capt., 4 West St., Goshen.			Vigor, William N., Major, 8081 Brecksville Rd., Brecksville.		
Rabold, Bernard L., Major, Commodore Hotel, New York.			Weinberg, Norman H., Major, 624 Maple Ave., Cincinnati.		
Rapoport, Paul, Capt., 1142 Elder Ave., Bronx.			Weiser, Richard W., Major, 3718 Belmont Ave., Cincinnati.		
Richardson, Willoughby P., Lt. Col., 41 Park Ave., New York.			Williams, Robert E., Capt., 202½ Morton Ave., Barberton.		
Rogers, William K., Major, 3923 212th St., Bayside, L. I.			Wright, Herbert B., Lt. Col., 2903 Broxton Rd., Cleveland.		
Rosenblatt, Albert I., 1st Lt., 427 E. 89th St., New York.					
Rosokoff, Solomon, Major, 284 Colvin Ave., Buffalo.			Oregon		
Rossano, Thomas A., Major, 4255 Barnes Ave., Bronx.			Alden, Warren H., Capt., Box 306, John Day.		
Rothman, Albert, Capt., 923 Ackerman Ave., Syracuse.			Coffey, Robert M., Major, 2220 Hayden Ave., Salem.		
Rubin, Myron M., Major, 863 Montgomery St., Brooklyn.			Emmens, Thomas H., Capt., 1443 E. Main St., Medford.		
Scotti, John R., Major, 63 Skillman Ave., Brooklyn.			Hale, Warren W., Capt., 4809 N. Lombard St., Portland.		
Scrofano, Charles A., Capt., 332 Delancy St., New York.			Hubert, Marion A., Lt. Col., 466 Highland Ave., Athens.		
Shapiro, Sydney H., Major, 733 Noble Ave., Bronx.			Kuykendall, John, Lt. Col., 1162 Williamette St., Eugene.		
Sharoff, Robert L., Capt., 3831 Lyme Ave., Seagate.			Packard, Frank B., Capt., 3233 N.E. 25th Ave., Portland.		
Silverstein, Louis M., Capt., 1553 Pitkin Ave., Brooklyn.			Parrott, Max H., Capt., 2815 N.E. 15th Ave., Portland.		
Simensky, Philip F., Major, 1389 W. 6th St., Brooklyn.			Russell, John P., Captain, 725 Lawndridge Ave., Grants Pass.		
Smith, Albert B., Major, 61 S. Broad St., Norwich.			Wilbur, Walter I., Major, Box 347, Carlton.		
Smith, DeWitt H., Major, 901 Lexington Ave., New York.					
Sperling, Nathaniel M., Capt., 344 East 3d St., Brooklyn.			Tennessee		
Stalkus, Anthony J., Major, 6946 Grand Ave., Maspeth, L. I.			Brown, Cecil H., Capt., 315 N. Fairground St., Jackson.		
Stein, Arthur H., Major, 371 State St., Albany.			Carney, Henry M., Major, 2112 W. End Ave., Nashville.		
Stein, Lester, Capt., 365 N. Y. Ave., Apt. 3H, Brooklyn.			Etter, Charles B., Lt. Col., 1678 Peach, Memphis.		
Stringer, Sydney W., 1st Lt., 2223 E. Genesee St., Syracuse.			Ingle, Charles W. Jr., Major, 938 Rozelle St., Memphis.		
Thomson, John D., Major, 1023 Valesco Rd., Syracuse.			Phillips, Walter A., Lt. Col., Arlington.		
Waffle, Albert H., Major, 241 Trafalgar St., Rochester.			Sutherland, Arthur J., Lt. Col., Vanderbilt Univ., Nashville.		
Wagh, David D., Capt., 413 Grove St., Brooklyn.			Williams, Horace G., Major, 886 Biggs, Memphis.		
Weeks, David M., Major, 139 E. 94th St., New York.					
Weiss, Arthur M., Major, 235 W. 76th St., New York.			Utah		
Welch, Charles S., Lt. Col., 286 State St., Albany.			Snow, Virgil C., Capt., Cedar City (Temp.).		
Welling, Joseph G., Lt. Col., 26 Virginia Ave., New York.					
Williams, Robert N., Capt., Box 62, Clymer.			Vermont		
Wolfson, Irving N., Capt., 650 W. End Ave., New York.			Archambault, Mark D., Capt., 8 Pearl St., Essex Junction.		
Zeller, Harry N., Capt., 19 W. Mosholu Pky. N., New York.			Foster, Clarence B., Major, Greensboro.		
			Mosher, Deane F., Capt., 186 Elm St., Newport.		
North Carolina			Virginia		
Clapp, Hubert L., Major, Box 145, Swannanoa.			Clare, John L., Capt., Box 1377, Danville.		
Elfron, Samuel L., Capt., 117 Stedman St., Fayetteville.			Faudree, Leslie A., Capt., Stanleytown.		
Felton, Robert L. Jr., Capt., Sunset Dr., Box 176, Carthage.			Johnson, Marcellus A. III, Capt., 100 Persinger Lane, Roanoke.		
Hill, Abel L., Capt., Kings Mountain.			Snead, Howard G., Capt., Franklin.		
Meriwether, Ben M., Major, 52 Page Ave., Asheville.			Wieland, Wesley W., Capt., 416 22d St., Virginia Beach.		
Norton, J. W. R., Lt. Col., School of P. H. Univ., Chapel Hill.			Woolwine, John H. Jr., Capt., Blacksburg.		
Pitts, William R., Major, 252 Cottage Pl., Charlotte.					
Ring, Louis J., Lt. Col., 113 College St., Mt. Olive.			Washington		
Sader, Julius, Major, Brevard.			Adams, Julius G., Lt. Col., 1734 Cole St., Enumclaw.		
Sanger, Paul W., Lt. Col., Med. Arts Bldg., Charlotte.			Griffin, Hillis F., Capt., 3102 N. 13th St., Tacoma.		
Tyson, Thomas D. Jr., Capt., Mebane.			Karel, Jack R., Lt. Col., Tacoma Hotel, 904 A St., Tacoma.		
Wood, Frank, Major, Marion.			Petersen, Ralph C., Major, 918 4th and Pike, Seattle.		
Worth, Thomas C., Major, 500 Whitaker Mill Rd., Raleigh.			Priest, Allen E., Major, 1717 "A" St., Pullman.		
			Read, Jesse W., Capt., 800 N. C. St., Tacoma.		
Ohio			Rice, Wayland R., Major, 1332 Harrison Ave., Centralia.		
Beren, Irving B., Capt., 3603 Reading Rd., Cincinnati.			Riley, John B., Lt. Col., Box 309, Sedro Woolley.		
Reshara, Edmund F., Major, Lakewood Hosp., Lakewood.			Roy, Richard D., Capt., 621 Med. Den. Bldg., Seattle.		
Black, Marion E., Major, 2600 Lee Rd., Cleveland.			Smith, Harry C. Jr., Capt., Box 556, Elma.		
Bratten, Paul C., Capt., Sidney.			Steiner, Jesse F., Capt., 4550 20th Ave. N.W., Seattle.		
Brickman, E. M., Major, 11409 Wade Park Ave., Cleveland.			Weisman, Paul G., Major, Colfax.		
Brinker, H. J., Major, 3302 W. 8th St., Prince Hill, Cincinnati.					
Brown, John E. Jr., Major, 2731 E. Broad St., Columbus.			Wisconsin		
Brown, Winship H., Capt., 226 Curtis Ave., Bowling Green.			Donovan, Michael M., Capt., 112 Bond St., Neenah.		
Dix, Carr E., Capt., 1430 Madison Ave., Columbus.			Hirsch, Raymond S., Major, 318 S. Washington St., Viroqua.		
Forteza, Rosendo Jr., Major, 2302 N. High St., Columbus.			Koschnitzke, Herman K., Capt., 221 N. 6th St., La Crosse.		
Junkermann, Carl S., Lt. Col., 1640 Guilford Rd., Columbus.			Krueger, Emil R., Major, Hayward.		
Kuby, William H., Capt., 3210 Harvey Ave., Cincinnati.			Musser, Marc J. Jr., Col., 2126 Chadbourne Ave., Madison.		
Lacock, Wilford C., Major, Box 13, Beaverdam.			Pagel, Howard F., Major, Ladysmith.		
Miller, Noah, Major, 631 Vinita Ave., Akron.			Stone, Grant C., Capt., 403 Noyes St., Berlin.		
Partington, P. F., Major, 3707 Daleford Rd., Shaker Heights.			Wood, Cordelle A., Lt. Col., 319 W. Main St., Waukesha.		
Pimsner, Arthur A., Lt. Col., 1385 Manor Park, Lakewood.					
Rodabaugh, Galon S., Capt., Basil.			Wyoming		
Russell, William E., Capt., Box 7, Genoa.			Hellewell, Joseph S., Lt. Col., 937 Uinta St., Evanston.		
Ryan, William J., 1st Lt., 237 Russell Ave., Akron.			Mylar, Wilber K., Lt. Col., 2520 Cap. Ave., Cheyenne.		
Salsbery, Otto H., 1st Lt., 2316 Madison Ave., Norwood.					
Satin, Robert J., Capt., 3061 Yorkshire Rd., Cleveland Hgts.			West Virginia		
Sharretts, Kenneth C., Major, 3304 Burnet Ave., Cincinnati.			Schwartz, Felix, Capt., McKendree.		
Sherman, Martin L., Major, 1718 Malvern Ave., Dayton.					
Simon, Karl J., Capt., 1104 39th St. N.W., Canton.			Puerto Rico		
Sternberg, Elmer G., Capt., 169 Wedgewood Ave., Cincinnati.			Landreon, Daniel, Major, Fajardo.		
Sutay, Paul L., Capt., 4846 E. 86th St., Cleveland.					

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion. The Report of the Secretary, additional sections of the Report of the Board of Trustees and reports of some councils, bureaus and departments will appear in subsequent issues of The Journal.—Ed.

(Continued from page 367)

Bureau of Investigation

The Bureau of Investigation, by the constant collection and distribution of information, has continued its efforts to promote the educational activities of the Association. Physicians, government agencies, federal, state and municipal authorities, radio stations, newspapers and magazines, Better Business Bureaus, civic and welfare organizations, Red Cross home nursing classes, research workers, teachers, students and laymen in general continue to seek information available in the Bureau's files.

INQUIRIES

Inquiries from these many sources showed an increase over those of 1944. Most numerous were those received from newspapers and magazines, from students in grammar schools, high schools and colleges seeking material on consumer problems and from cadet nurses and Red Cross home nursing classes. These inquiries indicate that the work of the Bureau is attracting the interest of a wider section of the public. These inquirers have sought information not only on "patent medicines" and quacks and fads of many varieties but also on statistical data and bibliographies on other matters of consumer interest.

Many requests for information and counsel have come from publishers of newspapers and magazines or from their advertising departments. Many such requests have come from farm journals. Three of the leading Chicago newspapers frequently call on the Bureau for information.

The Better Business Bureaus of the country turn to the Bureau of Investigation for aid that will enable them to serve their members and the public, and their inquiries and suggestions make it possible for the Bureau to develop important new material for its files.

County and state medical societies have continued to call on the Bureau for information about or investigation of matters that have come to their attention. The assistance of these societies in furnishing the Bureau with data on such matters has been deeply appreciated, as has the cooperation of many other agencies.

Teachers and their pupils in large numbers have sought and received the Bureau's material on "patent medicines" and charlatans in connection with their study of consumer problems and have made it clear that much of this particular material is not obtainable elsewhere. Physicians continue to inquire about questionable practitioners and about dubious methods of treatment brought to their attention by patients. The general lay public, as before, has itself sent in many such inquiries. Many inquiries, particularly those from students, dealt with more than one item, and some of them included long lists, as indicated by the fact that 3,000 inquiries pertained to 4,600 separate subjects. Among the leading subjects of inquiry in 1944 were diabetes "cures," vitamin preparations, aspirin, so-called "alkalizers," laxatives, cancer "cures" and various products that are widely advertised over the radio and in the lay press.

OTHER ACTIVITIES

The Bureau prepared a total of forty-one articles for THE JOURNAL, including seventeen presentations of abstracts of one hundred and twenty-seven Notices of Judgment issued by the

Food and Drug Administration, three presentations of abstracts of twenty-five Cease and Desist Orders and fifteen of abstracts of one hundred and six stipulations by the Federal Trade Commission. There also were five articles presenting abstracts of nine fraud orders issued by the United States Post Office Department.

The distribution of pamphlets and of the book *Nostrums and Quackery and Pseudo-Medicine* was continued as in previous years, and physicians and educators were provided with the Bureau's slides on nostrums and quackery for educational purposes.

The Bureau has continued its cooperation with the Post Office Department, the Federal Trade Commission and the Food and Drug Administration.

Bureau of Exhibits

The Bureau of Exhibits is concerned primarily with graduate medical instruction and secondarily with health education of the public. During the year 1944 the Bureau cooperated in meetings in forty-one states and in the District of Columbia. There was a pronounced increase in requests from the armed forces and, as in the past, such requests were given special consideration. Because of the war it was not possible to comply with requests outside the limits of the continental United States.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Chicago session emphasized war medicine. The United States Army, the United States Navy and the United States Army Air Forces not only presented noteworthy exhibits of their own but lent generous aid in men and materials to other features of the meeting. Many medical officers from the armed forces and from the United States Public Health Service showed their own exhibits dealing with war problems. An excellent group of exhibits on tropical medicine caused much favorable comment, while exhibits on industrial health in wartime were extensively displayed.

There were four special exhibits sponsored by the Committee on Scientific Exhibit of the Board of Trustees. The special exhibit on fractures, under the guidance of a committee headed by Dr. Kellogg Speed, was as popular as ever. A group of soldiers from Camp Grant acted as patients in the demonstrations. The special exhibit on the treatment of burns was presented by a committee consisting of Dr. Stanley J. Seeger, chairman; Capt. Ernest W. Brown (MC), U. S. Navy, and Capt. Joseph E. Hamilton, M. C., A. U. S. The exhibit covered all phases of the treatment of burns. The special exhibit on chemotherapy and infectious diseases was presented by a committee of which Dr. Chester S. Keefer was chairman. The subject of tropical diseases, arranged with the help of Dr. Henry E. Meleney, another member of the committee, received much emphasis. A group of physicians who had spent many years in the tropics demonstrated in this exhibit throughout the week. The special exhibit on rehabilitation was presented by the Council on Industrial Health and the Council on Physical Medicine of the American Medical Association with the assistance of representatives of the Army, Navy, Veterans Administration and Federal Security Agency.

Each of the sixteen sections of the Scientific Assembly sponsored groups of exhibits dealing with the various specialties of medicine. The total number of these exhibits was much smaller than usual because of the limitation of exhibit space in the Palmer House, but the caliber of the exhibits that were shown was very high. Great credit is due those exhibitors who, under the difficulties of wartime, were able to assemble so much excellent material. The emphasis of the exhibits was placed, as usual, on the problems of the physician in general practice rather than on the interests of the specialist. The section representatives to the Scientific Exhibit deserve special mention for their assistance.

Motion pictures were shown in the Casino at the Morrison Hotel, three blocks from the Scientific Exhibit at the Palmer House. There was but one motion picture theater, and most of the films were presented twice during the week. As in previous years, no films were shown in exhibitors' booths.

The Committee on Awards, of which Dr. Vincent W. Archer was chairman, performed its task conscientiously and with credit. Twenty-three awards were made, including six medals, eight certificates of merit and eight honorable mentions. One certificate of appreciation was awarded to an exhibit from Brazil.

An interesting trend in graduate medical instruction is indicated by the question and answer conferences. At the Chicago session there were two of these in rooms adjoining the exhibit hall. Rheumatic fever was presented under the auspices of the Section on Pediatrics in cooperation with the Rheumatic Fever Committee of the American Academy of Pediatrics. Heart and peripheral vascular disease was conducted by the Section on Practice of Medicine in cooperation with the American Heart Association. Consultants were on duty in each conference room, on a prearranged schedule, during the entire week. So popular were these conferences that requests have been received for half a dozen such conference rooms on various subjects at the next annual session.

ASSOCIATION EXHIBITS

Graduate medical instruction through the use of exhibits still further increased during 1944. The demand exceeded all previous years. Some of the requests could not be complied with because the exhibits were already reserved for other occasions, while several of the meetings for which material had been reserved were canceled. There were seventy-one exhibits sent to thirty-six meetings of medical and scientific organizations. The Director of the Bureau either attended the meetings personally or made arrangements for an attendant from the American Medical Association staff or otherwise.

Health education was promoted with thirty-three exhibits at twenty-five meetings, fairs and expositions. The cancellation of most of the large fairs and expositions reduced the activity to the lowest level in several years. The difficulty of transporting the exhibits by freight and express was an additional factor interfering with this activity.

The total number of exhibits available for loan is fifty-four. During the year nine new exhibits were made and ten old ones discontinued.

MOTION PICTURES

The demand for motion pictures has exceeded all previous years. Additional copies of old films, together with a few new ones, have made it possible to send out 575 pictures to 333 meetings, the chief recipients being army camps, medical schools, hospitals and county medical societies. There are now twenty-seven films in the motion picture library, three old ones having been dropped during the year and five new ones added. Reservations are often made months in advance, and most of the films are booked as often as the difficulties of transportation will allow. The secretary of the Bureau has continued the good work she has been doing in the supervision of this activity, and it is due to her efficiency that it has functioned so well.

There have been hundreds of requests for information concerning films distributed by other organizations. Often a physician desires a motion picture on a special subject to fit into the program of the meeting which he is preparing. As far as possible these requests have been complied with, entailing much correspondence.

THE ARMED FORCES

Assistance to the Army, Navy and Air Force were given special consideration. During the year one hundred and forty-eight motion picture films were sent to posts and camps in twenty states for purposes of medical instruction. Health exhibits were lent to the Army on three occasions for the instruction of enlisted personnel. In spite of the exigencies of war, with sudden transfer of officers and other difficulties, this cooperation was carried on as far as facilities would permit.

MUSEUMS

Cooperation with museums has been maintained, with permanent exhibits on health education at the Chicago Museum of Science and Industry, the Cleveland Health Museum and the Toledo Museum of Science. Temporary exhibits have been lent to the Cayuga Museum of History and Art at Auburn, N. Y., while at the Newark Museum at Newark, N. J., as well as at several of the other museums, question and answer files have been on display together with current copies of *HYGEIA*. Question boxes have been continued at the museums in conjunction with the displays. The questions are sent to the American Medical Association and answered by the Bureau of Health Education.

The American Museum of Health, New York, which has in its possession a considerable amount of exhibit material previously shown by the American Medical Association at the New York World's Fair, is still without permanent quarters. However, the exhibit material has been on display in other cities from time to time.

Museums, with their ready made audiences and with rather ideal display facilities, offer a great opportunity for exhibits on health education. County medical societies should not neglect this valuable contact with the public. The Bureau of Exhibits will cooperate with county societies as far as possible.

PUBLICATIONS

The second edition of the book *Fundamentals of Anesthesia* was published during the year. The fifth edition of the *Primer on Fractures* is nearly exhausted, and the Exhibit Committee on Fractures is preparing additional material for a sixth edition.

The pamphlets *Varicose Veins* and *Food Charts* have been revised and reprinted. They still remain popular.

A pamphlet on *Chemotherapy in Infectious Diseases*, prepared by Dr. Chester S. Keefer, Dr. Henry E. Meleney and Dr. Austin E. Smith, in connection with the special exhibit on the same subject, has received wide distribution.

Several pamphlets were prepared and distributed in connection with the special exhibit on burns. The *Local Treatment of Burns*, by Dr. Roy D. McClure and Dr. Conrad R. Lam, *Treatment of Burns: General Care of the Burned Patient*, by Dr. Henry N. Harkins, *Establishment of a Skin Cover Following Thermal Burns*, by Dr. Earl C. Padgett and Dr. John H. Gaskins, *Electric Burns*, by Dr. Hart Ellis Fisher and Dr. George Howard Irwin, have proved popular. The pamphlet *Chemical Burns of the Eye*, prepared by Dr. Alan C. Woods, Dr. William F. Hughes Jr., Dr. Roy O. Schulz and Dr. A. E. Maumenee, was printed but not distributed. Authorization for publication of the material contained therein was first given and then rescinded because of its confidential nature in the war effort.

MISCELLANEOUS ACTIVITIES

The Director of the Bureau has kept in close touch with the various Councils and Bureaus of the Association so that he could properly represent the work of the Association when exhibits were presented at state medical meetings and other occasions.

The Director of the Bureau has served on the National Advisory Council of the Cleveland Health Museum and the Committee on Exhibits of the Society of Illinois Bacteriologists. He has been a member of the Council of the Public Health Education Section, the Committee on Cost Accounting for Health Education and the Committee on Compensation for Public Health Workers of the American Public Health Association. He has lectured at the University of Illinois College of Medicine, where he is assistant professor of bacteriology and public health.

Students in health education both from this country and from the Latin American countries have been given much information concerning exhibits and motion pictures on their visits to Association headquarters.

Conferences have been held during the year with the directors of scientific exhibits of state medical societies concerning the exhibit programs for those societies.

The Bureau also collaborated with the American Academy of Ophthalmology and Otolaryngology in connection with their exhibit program.

Articles have been prepared for *HYGEIA* and book reviews for *THE JOURNAL*.

Bureau of Public Relations

During the past year, the Bureau of Public Relations of the American Medical Association has continued to expand its activities, extending to the medical profession and to the public information regarding the work of the Association and the important progress being made by medical science. This Bureau is not, primarily, one for propaganda. Its activities do induce support of the position of the American Medical Association and of the medical profession by keeping the public fully informed regarding medical affairs and medical progress.

During 1944 the number of individual inquiries coming to the Bureau of Public Relations from newspapers, magazines, radio stations and other mediums of public information totaled more than 5,300, a slight increase over the number received the previous year. This is particularly impressive in view of the concentration of the nation's energies on war work. Many of these inquiries pertained to medical activities other than those directly related to the war, thus demonstrating the effectiveness of the Association's policies in furthering public knowledge regarding medical science. More than 91,000 individual items based on articles that appeared in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* and in *HYGEIA* were published in daily newspapers during the year. This number is estimated on the basis of press clippings received in the headquarters office and represents an increase of approximately 7,000 over 1943. These articles were not as long as the average ones published in newspapers in 1943, owing to space limitations imposed on American newspapers by the paper shortage. Significantly, however, there was an increased use of articles based on information emanating from the Association despite the amount of space being devoted to the war by the American press.

The *AMERICAN MEDICAL ASSOCIATION NEWS*, containing abstracts of articles from *THE JOURNAL* and *HYGEIA*, is sent out by this Bureau to some 1,200 newspapers, press magazines, radio stations, industrial house organs, medical journals and bulletins. This publication, prepared under the supervision of the Editor of *THE JOURNAL*, has become a recognized medium for the dissemination of news pertaining to medical activities and medical progress. All of those receiving it have made specific, voluntary requests to have their names placed on the mailing list.

The aforementioned data regarding inquiries received by this Bureau and articles appearing in newspapers demonstrate that editors, reporters, feature writers, news commentators and managers of radio stations throughout the country look to the headquarters office of the American Medical Association as a dependable source of information regarding medical matters. They have sought information and advice on every phase of the multiple activities of the Association and of the profession. The activities of this Bureau in providing guidance to these people has resulted in a decided decrease of inaccurate information regarding medical matters appearing in the daily press. In hundreds of instances inaccurate information of such a nature has been corrected in process of publication, and in many other hundreds of cases such inaccurate information has been completely eliminated as a result of the advice and service offered by this Bureau.

Direct contact is maintained in Chicago by this Bureau with the headquarters of all the press associations and radio chains, and during 1944 at least two articles concerning material published in *THE JOURNAL* or *HYGEIA* were sent out each week from Chicago on press association wires.

Together with other bureaus and councils of the Association, the Bureau of Public Relations has played a major role in assisting in medical phases of the nation's war activities. Those associated with this Bureau have served as consultants to or members of information and other committees of practically every branch of the federal government in regard to medical phases of the war.

All of these activities have played a vital role in bringing about an understanding on the part of the American people of the contributions being made by the Association and medical science to the public welfare.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

During the past year the major concern of the Council on Medical Education and Hospitals has been with the supply of premedical and medical students.

THE SUPPLY OF PREMEDICAL AND MEDICAL STUDENTS

The trend of events can probably best be visualized by noting certain facts about the composition of students now in medical schools. The third and fourth year classes contain nearly 90 per cent Army and Navy students. The sophomore class contains fewer students in this category, although over 80 per cent of the class are A. S. T. P. and Navy V-12 students. The sharply decreased input of such men into our medical schools is emphasized by the drop in Army and Navy students in the current first year class, which totals about 37 per cent. It was possible for this first year class to be filled primarily because of a temporary Selective Service adjustment. In April 1944 the Selective Service System abolished further occupational deferments of premedical students effective July 1, 1944. The Selective Service System permitted the enrolment of approximately 2,000 students before July 1, 1944 even though some of these men had not completed their premedical training. This adjustment was temporary and, unless regulations are changed, these numbers will not be available under Selective Service deferment for the next entering class in 1945.

It is estimated that Army and Navy students completing their premedical training will fill freshman vacancies in the 1945 entering classes to the extent of approximately 50 per cent of the places. This will virtually deplete the supply of premedical students in the Army and Navy programs so that only approximately 10 per cent of the freshmen places will be filled by students in the Navy program and none of the places by students in the Army program in 1946. This will necessitate selection at that time of 90 per cent of the entering class from civilian sources.

It is highly improbable that medical schools can secure qualified civilian students to fill 50 per cent of the places in the entering classes of 1945, and it is utterly impossible for them to secure 90 per cent of the freshmen from civilian sources in 1946. The civilian sources from which these students must be drawn include women, physically disqualified men and veterans plus perhaps a relatively few students who finish their premedical work before reaching the age of 18. Whether the students in the latter category will be deferred on reaching this age during the medical studies is uncertain. In any case there is general agreement that, should schools be limited to these sources for freshman material, there will result either a pronounced reduction in enrolments or a serious decrease in the quality and qualifications of the entering students.

Even though the entering classes in 1945 should in some way be nearly filled, it is highly important to remember that no premedical students have entered the A. S. T. P. Program since June 1944 and that no students are entering the Navy V-12 premedical program at the present time. In short, there is an utterly inadequate number of premedical students being trained for future admission to medical schools.

All this was foreseen a year ago and presented to the House of Delegates in the last annual report. Taking cognizance of these facts and estimates, the House of Delegates of the

American Medical Association passed the following resolution at its opening session, June 12, 1944:

WHEREAS, The present policy of the Army and the Selective Service System in preventing the enrolment of a sufficient number of qualified medical students will inevitably result in an overall shortage of qualified physicians with imminent danger to the health and well being of our citizens; therefore be it

Resolved, That it is imperative that immediate action be taken by the President or the Congress of the United States to correct the current drastic regulations, which result in a restriction of the number of students qualified to enter the courses of medical instruction in approved medical schools.

* This resolution was sent to the President, the secretaries of War and Navy, the director of Selective Service and all members of the House and Senate military affairs committees. The responses to this communication clearly indicated that the governmental departments and agencies involved were unwilling to make any adjustment.

It seemed apparent that the only remaining approach was to the Congress of the United States. A bill providing for the deferment of appropriate numbers of premedical students was introduced as H. R. 5128 by Representative Louis E. Miller of Missouri. Hearings were never held on this bill.

In the ensuing weeks and months every effort was made in further conferences and communications to bring about the necessary adjustment on the part of Selective Service and the Army and the Navy as well as to bring to the attention of senators and congressmen the alarming seriousness of the situation. An analysis of the problem was made by the Secretary of the Council on Medical Education and Hospitals before the Subcommittee on Wartime Health and Education of the Committee on Education and Labor of the Senate during hearings of that subcommittee pertaining to the health of the nation. Since that time Senator Claude Pepper of Florida has evinced a growing concern over this matter. In February 1945 conferences were held with representatives of Senator Allen J. Ellender of Louisiana, who also has become interested in this problem. At that time agreement was reached as to the general lines which an appropriate legislative measure ought to follow to meet the needs. On Feb. 26, 1945 Senator Ellender introduced into the Senate bill S. 637, which was referred to the Committee on Military Affairs.

The provisions of this bill are generally acceptable to the Council on Medical Education and Hospitals of the American Medical Association and likewise have the full support of the executive council of the Association of American Medical Colleges. Hearings were conducted by the Senate Committee on Military Affairs on May 1, 1945. The Council on Medical Education and Hospitals was represented by Drs. Harvey Stone and Victor Johnson. The bill was opposed by the Army, Navy and Selective Service System. At the time of going to press, the Committee has made no report.

Two days after this bill was introduced the Secretary appeared before the Senate Committee on Education and Labor to make a statement supporting the Hill-Burton Senate Bill 191 providing for hospital construction supported in part by federal funds (see also page 000). In connection with that statement the Secretary again pointed out the inadequacy of the supply of qualified premedical and medical students for future classes and stressed the necessity for passage of a bill carrying the provisions of the Ellender bill. Considerable interest was evinced in this problem and there were indications that the Senate Committee on Education and Labor would support the measure.

It is probable that events subsequent to the publication of this report will necessitate a supplementary report from the Council to the House of Delegates.

THE SUPPLY OF PHYSICIANS

Even if the Ellender bill is passed or appropriate measures of other kinds are instituted to insure a continuation of the supply of premedical and medical students, there is likely to be a considerable reduction in the number of physicians available for civilian medical care after the war. It appears probable that there will be the following increased demand for physicians which did not exist before the war:

Army.—A regular standing army including men enrolled under a compulsory military training program might total 2,000,000 men, requiring 10,000.

Navy.—The peacetime Navy will probably require about 5,000.

Veterans Administration.—Manning the veterans' hospitals may require about 15,000.

Liberated Countries.—The widespread destruction of hospitals and medical schools and casualties among physicians in liberated countries of Europe and in China will require the aid of unknown numbers of physicians from the United States.

Replacement of Casualties.—The number of physicians killed or incapacitated by the war requiring replacement is another unknown quantity.

Total.—The probable number of doctors needed after the war in addition to numbers before the war might be conservatively estimated at more than 30,000.

Even if the numbers of enrolments, admissions and graduates are maintained at the present wartime levels, only about one half of this need would be met. Under the accelerated program of medical education there were 10,357 medical graduates in the two year period from July 1, 1942 (when acceleration started in most medical schools) to June 30, 1944. By June 30, 1945 there will be an additional estimated (by medical schools) 9,844 graduates.

This totals 20,201 graduates during a complete three calendar year cycle involving four graduating classes. If the accelerated program is continued in our medical schools, there will be an additional approximately 20,000 graduates in the ensuing three year cycle from July 1, 1945 to June 30, 1948. During this whole six year period of accelerated medical education there will be a total of approximately 40,000 graduates.

During this same six year period approximately 24,000 physicians have died or will die, since the death rate of civilian physicians is increasing. As a consequence there will be available after the war only some 16,000 additional physicians to meet the estimated increased need of over 30,000. The deficit will be far greater unless there is made some such adjustment as is provided for in the Ellender bill.

THE ACCELERATED PROGRAM IN MEDICAL SCHOOLS

Even though the input of Army and Navy students into our medical schools will sharply decrease, those men who are in the A. S. T. and Navy V-12 programs in medical schools will be continued until graduation. Therefore it is necessary that medical schools continue the accelerated program in accordance with contracts held by the Army and Navy. However, most medical schools plan to return to the plan of annual admissions of medical students. Annual admissions are entirely compatible with acceleration after the student enters medical school. The result will be the completion of the work in three years, although there will be fewer students admitted in any one calendar year. Even though there are annual admissions commencing in 1945 there will necessarily be graduations every nine months until the year 1948, so that the increased numbers of students graduating in the past three years will be maintained in the ensuing three years.

LICENSURE UNDER THE ACCELERATED MEDICAL SCHOOL PROGRAM, THE PREMEDICAL A. S. T. AND NAVY V-12 PROGRAMS, AND THE NINE MONTH INTERNSHIP

All states in the Union, as well as the District of Columbia, Alaska, Hawaii and Puerto Rico, have made certain adjustments in their licensure legislation or practices, where such were required, to facilitate the licensure of graduates under the accelerated programs, at least for the duration of the war.

The information received from those states whose licensure laws include specific premedical requirements seems to indicate that there should be no licensure difficulties encountered by students whose premedical work was taken under the A. S. T. or the Navy V-12 or comparably accelerated civilian programs.

Of the twenty-three states requiring an internship for licensure, at least for the duration of the war, eight states (and Alaska) will accept a nine month internship as fulfilling the internship requirement. Twelve states (plus the District of Columbia and Puerto Rico) require an additional three months in a civilian hospital or military service and will withhold the license until this is completed but will permit applicants for licensure to write the examination on completion of the nine month internship. In three states physicians are not eligible to take the examination until after completion of a year's internship, three months of which may be in the military

service. Officers seeking licenses in these three states must delay licensure until after the war or seek furloughs to take the examinations. In the past it has been possible for officers to obtain furloughs for this purpose. Four states specifically require the military medical service to be in a military hospital.

FACULTY MEMBERS IN WAR SERVICES

On July 1, 1944 the seventy-seven medical schools and schools of basic medical sciences in the United States had contributed a total of 5,828 of its faculty members to the armed forces. This number is somewhat larger than the 5,637 of last year and is still about 10 per cent of the medical officers in the armed forces. It seems apparent that medical schools have contributed approximately as large a proportion of their faculties to the armed forces as the proportion of physicians not engaged in academic work who have been commissioned.

This depletion of faculties continues to handicap the teaching of more medical students and in less time than in normal years. Further faculty reductions have resulted from increasing participation in war research and special war assignments.

The loyalty and devotion of faculty members remaining to carry on the increased work of the medical schools under adverse conditions is to be highly commended. In the demobilization period special consideration should be given to the preferential early release of physicians on medical school

Estimated Requirements and Residencies Available

Residencies Desired	Estimated Number of Additional Residency Places Required (Two Year Demobilization)	Additional Residencies Available in 256 of the 1,042 Hospitals
Anesthesiology.....	71	58
Dermatology and syphilology.....	108	34
General training.....	705	69
Internal medicine and subspecialties....	1,089	322
	14	33
	615	167
	172	55
	201	85
Otolaryngology.....	185	65
Pathology.....	126	112
Pediatrics.....	253	86
Plastic surgery.....	39	13
Psychiatry and neurology.....	200	224
Radiology.....	155	104
Surgery.....	1,385	263
Urology.....	108	62
Totals.....	5,636	1,752

faculties, to restore the quality of medical instruction to a higher level as soon as possible. Conferences on the possibility of such arrangements have been held with the appropriate authorities.

POSTWAR MEDICAL TRAINING

Under the direction of Lieut. Col. Harold C. Lueth, Liaison Officer of the Surgeon General, a study has been conducted by the Committee on Postwar Medical Service pertaining to the educational plans of medical officers after the war. On the basis of early returns in this study estimates were made by the Committee on Postwar Medical Service and the Council on Medical Education and Hospitals concerning the probable requirements to meet the needs of all the 60,000 medical officers in the armed forces. These estimates were published in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, Nov. 11, 1944, pages 709-711. This material was given wide distribution. Reprints were sent to several thousand individuals, agencies and institutions. Returns have now been received and analyzed from 21,000 medical officers. On the basis of these more complete returns it is likely that some modifications have been made in estimates of the overall demand and the total expansion required in educational facilities. However, the Council on Medical Education and Hospitals proceeded to the necessary task of determining available places in hospitals and other educational institutions to accommodate returning medical officers. To this end, in cooperation with the Committee on Postwar Medical Service, the Council directed a communication to all approved intern and residency hos-

pitals requesting their aid in the development of educational facilities for returning medical officers. Replies have now been received from 256, or approximately 25 per cent, of the 1,054 civilian hospitals approved by the Council for intern and/or residency training. This group has indicated that 1,752 additional residencies can be provided in the various divisions of medicine and surgery. Of this number 1,042 represent expansions of residency services already approved by the Council. From the data secured on the educational requirements of medical officers it has been estimated that about 5,700 additional residencies will be needed if the demobilization extends over a period of two years.

From the data contained in the accompanying table it seems probable that the hospital facilities will be adequate to meet the anticipated demand for postwar graduate training. The estimated requirements in some fields can practically be fulfilled by the group that has already reported. In most of the other specialties the required facilities will no doubt be available when an additional 25 to 50 per cent of the hospitals have replied. The main exception is in the general surgical field, where 263 places have now been reported in relation to the estimated need of 1,595. Few hospitals have supplied information regarding mixed residency training, but it should be noted that all hospitals approved for internships are likewise accredited for general residencies. There should be no considerable difficulty, therefore, in providing the number of general training courses requested by the medical officers.

It is gratifying that hospitals are seriously facing their responsibilities in the postwar educational field and, through committees, are devoting considerable study to possible expansion of educational facilities without a deterioration in the quality of training. Interhospital collaboration in these plans has developed in a number of areas usually centering in a medical school hospital or a large hospital not associated with a medical school but which has a well established program of education for house officers.

In carrying out these objectives the Council has worked closely in collaboration with the Committee on Postwar Medical Service, the Advisory Board for Medical Specialties, the various specialty boards themselves and a number of professional organizations in the country devoted to one or another of the specialty fields.

Although the major task appears to be that of providing hospital facilities for definitive training of men in residency, internship and fellowship fields, progress has also been made in the development of review and refresher courses for men who desire briefer periods of training. This work is being carried out in close collaboration with the Association of American Medical Colleges, to which the Committee on Postwar Medical Service has assigned the major responsibility in this field, since medical schools and their faculties will play an important role in the development of review and refresher courses.

The appointment of veterans to house officerships will be facilitated by a policy in effect under the Procurement and Assignment Service in which veterans need not be counted in house officer quotas at any time.

VETERANS' BENEFITS FOR MEDICAL STUDENTS

The educational section of the "G. I. Bill of Rights" provides that "any person who served in the active military or naval service on or after Sept. 16, 1940 and prior to the termination of the present war and who shall have been discharged . . . and whose education for training was impeded, delayed, interrupted or interfered with by reason of his entrance into the service . . . and who either shall have served ninety days or more . . . shall be eligible for and entitled to receive education or training under this part. . . . Discharged service men under 25 years of age at the time they entered the service are assumed to have had their education impeded or delayed, while those 25 years of age or over at the time they entered the service will be expected to supply evidence that such a delay or obstacle to their education occurred." Three months of military service entitle the veteran to one year of further education; twelve months of

service, two years of education; twenty-four months of service, three years of education.

The bill provides for tuition and fee benefits and subsistence benefits. The tuition and fee benefits are paid to the school for tuition, fees, books, equipment and other expenses but may not exceed \$500 for an ordinary school year. The subsistence benefits paid to the veteran are \$50 per month if there are no dependents, or \$75 per month if the veteran has a dependent or dependents.

The law clearly provides that a veteran eligible for benefits must be fully acceptable to the school he seeks to enter. In medicine, this means that an applicant must meet the civilian medical school admission requirements, including scholastic and other qualifications. This provision is especially important in medicine, since the lives of his patients are in the hands of the physician. Only fully qualified men and women can be trained for such responsibilities. It would serve neither the public nor the veteran for medical schools to admit unqualified ex-service men.

VETERANS' BENEFITS FOR PHYSICIANS DESIRING POSTGRADUATE AND GRADUATE TRAINING

A subcommittee of the Committee on Postwar Medical Service working with the Council has held extensive correspondence and conferences with the Veterans Administration concerning the applicability of the G. I. Bill of Rights to physicians who will seek additional hospital and other advanced training after the war. The Veterans Administration was of the opinion that any physician who is now in any of the branches of the service and has been on active duty for more than ninety days will be eligible for those benefits described in the preceding section.

Even those who are more than 25 years old and desire refresher or other courses will no doubt be considered eligible even though they may have entered the Army at a time when their education might have been assumed as completed, since the law in providing refresher and retraining courses is naturally to be interpreted in a liberal spirit.

The law provides that the administrator shall pay to the educational or training institution the tuition costs and fees that are customarily charged and may also pay for books, supplies and equipment and other necessary expenses, provided the payments with respect to any one person should not exceed \$500 for an ordinary school year. These payments are not to be paid to "establishments furnishing apprentice training on the job." The law provides that, if the institution has no established tuition fee or if the administrator deems the established tuition fee to be inadequate compensation, the administrator is authorized to provide for the payment, again, however, with the \$500 ordinary school year limitation.

Applying these provisions of the law to the case of residencies in our hospitals and courses in our universities for our physician veterans, the Veterans Administration was of the opinion that there would be no difficulty about the payment of tuition and fees by the administrator for those physician veterans who elect clinical courses in university and other acceptable hospitals where a formal educational program has been inaugurated. The administration was also of the opinion however that, provided the hospital can be certified to the administrator by the appropriate state agency as a competent educational and training institution, the administrator may fix the tuition to be paid to such an institution under the provisions of the law. If the hospital is certified as a bona fide educational institution, the tuition for the physician veterans can be paid to that hospital even though the hospital still continues to pay a stipend to the veteran.

CREDIT FOR COURSES TAKEN UNDER MILITARY AUSPICES

The armed services offer men and women on active duty a variety of educational opportunities. Some of the courses offered by such organizations as the United States Armed Forces Institute, Madison 3, Wis., are at the college level and warrant the subsequent awarding of college credit by a civilian institution. A committee of the American Council on Education is preparing "A Guide to the Evaluation of Edu-

cational Experiences in the Armed Services" to assist colleges in determining what academic credit ought to be allowed for such work. In this venture the Council on Medical Education and Hospitals has cooperated with the United States Armed Forces Institute by inclusion of a statement concerning such courses in its booklet "Choice of a Medical School." This booklet advises prospective medical students concerning their professional and preprofessional studies and has a wide circulation. Nearly ten thousand copies of this booklet were provided the Army and the United States Armed Forces Institute for distribution to various agencies and military units throughout the world in assisting men in the armed forces to conduct some of their premedical studies before discharge. The Council on Medical Education and Hospitals will accept the premedical credit allowed a student by an approved college which follows the recommendations of the guide previously mentioned and prepared by the American Council on Education.

LATIN AMERICAN PHYSICIANS

The Council is deeply interested in the development of educational opportunities for Latin American physicians, who are coming to this country in increasing numbers for graduate training. The decline of learning and science, including medical education, in Europe during the war will tend to increase the importance of the United States as a center for advanced training for years to come. Thus we may expect a continual increase in the number of Latin American physicians who will be seeking further training in the schools and hospitals of the United States. This tendency deserves the full support of the medical profession in this country, which will share in a mutually beneficial exchange of ideas and the cementing of lasting inter-American friendship.

A study is now being made by the Council to determine the number of Latin American physicians currently in training in the United States, the type of training involved and the extent to which educational facilities in hospitals may need to be expanded to meet possible future needs. Qualified medical graduates of Latin American schools may from the Council's point of view serve as interns and resident physicians in approved hospitals. To assist such applicants in obtaining suitable appointments, lists of available internships and residencies will be prepared and will also be furnished to the various agencies that are interested in the training of medical personnel from the other American republics. The Council has already established contacts with the following Washington agencies: the Institute of International Education, the Division of Science, Education and Art of the State Department, the Office of the Coordinator of Inter-American Affairs, the Institute of Inter-American Affairs and Pan American Sanitary Bureau.

The directing board of the Procurement and Assignment Service has announced that graduates of Latin American schools will not be counted in hospital quotas at least for the first nine months. This ruling should do much to facilitate the appointment of Latin American physicians and thus help to establish a wider scope of hospital training for them in the United States.

It is recognized that Pan American problems in medicine go beyond those of medical education even though this may be the most important aspect of the problem at the present time. Therefore it might be desirable to establish a committee of the American Medical Association to deal with the overall problem, which will become of increasing importance after the war. Such a committee will lend considerable prestige to such activities as the Council might undertake.

GRADUATE CONTINUATION COURSES FOR PRACTICING PHYSICIANS

The necessity for continuation courses of study in the medical specialties has never been more urgent than at the present time. Physicians in civilian practice have been compelled to enlarge their field of activity and to refresh their knowledge of the intricacies of modern diagnosis and treatment. Physicians in military service and returning medical officers are also encountering problems. The demand for all means of instruc-

tion is greater than it has ever been. Medical educators and interested organizations and institutions throughout the country are attempting to assist physicians called on to assume new responsibilities by offering refresher courses or continuation courses and by the presentation of scientific papers or lectures on timely subjects. These individuals, who will give or have given so generously of their time to participate in the instructional programs, constitute a large and distinguished faculty of medicine.

The Council on Medical Education and Hospitals publishes semiannually advance information concerning postgraduate continuation courses for practicing physicians. These include courses in a wide variety of fields in clinical medicine and the basic sciences. The courses are for variable periods from a few days to several months. Some are concentrated full time courses and others are part time. In *THE JOURNAL* for Dec. 23, 1944 there were listed 354 such courses available during the first half of the current year. The opportunities listed are offered by hospitals, medical schools, graduate medical schools or other agencies in twenty-one states and include thirty-nine specialty or subspecialty subjects.

HILL-BURTON BILL

Senate Bill 191, introduced on Jan. 10, 1945 by Senator Lister Hill of Alabama for himself and Senator Harold Burton of Ohio, provides for an amendment of the Public Health Service Act to authorize grants to states for surveying their hospital facilities and for planning and constructing additional hospitals and health centers. The Secretary was designated to appear before the Senate Committee on Education and Labor, to which this bill was referred, to indicate to the committee that the Board of Trustees of the American Medical Association had agreed to the general policies of the Hill-Burton bill, since its provisions appear to be within the platform of the American Medical Association. In these hearings the Secretary expressed gratification with the scientific approach manifested in this bill. The manner in which the existing faulty distribution of hospitals is to be assessed conforms to the best scientific procedures.

The proposed surveys, conducted by state agencies, with the assistance of all groups concerned with hospital care, should provide the information requisite for an intelligent program of hospital construction in areas deficient in hospital facilities.

The sound approach to a solution of the problems of better distribution of medical care and hospital facilities on the part of the Committee on Education and Labor is reflected not only in the provisions of this bill but in the approach to these problems by the Subcommittee on Wartime Health and Education, under the chairmanship of Senator Claude Pepper. The interim report of this committee, published in January 1945, is an admirable document, containing invaluable information for the formulation of programs for improved medical care.

Certain of the procedures suggested in this report and in the hospital construction bill are practically identical and equally sound. The report recommends that "state programs should be drawn up by state health planning commission" and "before federal funds could be granted, however, overall state plans and individual projects should be reviewed and approved by the United States Public Health Service to make sure that they meet certain standards of construction, operation and complete, coordinated service." Equally significant is the recommendation that "grants to both public and voluntary institutions included in the plan would be administered through a state agency."

MEDICAL SCHOOLS VISITED DURING THE CALENDAR YEAR 1944

The following medical schools were visited by the Secretary for formal inspection, advice and consultation or other purposes during the calendar year 1944.

University of Arkansas School of Medicine (twice).
University of California Medical School.
College of Medical Evangelists.
University of Southern California School of Medicine.
Stanford University School of Medicine.
University of Colorado School of Medicine.
Boston University School of Medicine.

Tufts College Medical School.
Wayne University College of Medicine.
Washington University School of Medicine.
Western Reserve University School of Medicine.
Medical College of the State of South Carolina.
Meharry Medical College.
Vanderbilt University School of Medicine.
University of Utah School of Medicine (twice).
University of Vermont College of Medicine.

FORMAL ACTIONS ON MEDICAL SCHOOLS DURING THE CALENDAR YEAR 1944

During the calendar year 1944, following a detailed inspection by the Secretary, the Council took action on the status of three medical schools. The Southwestern Medical College of the Southwestern Medical Foundation, Dallas, Texas, was approved. The University of Utah School of Medicine, which had formerly operated a school of the basic sciences, has had the full four year medical curriculum in operation for about two years. This school was approved as a four year medical school on June 11, 1944. The first class graduated in September 1944. The University of Arkansas School of Medicine, which had been on probation, was removed from this status and restored to full accreditation.

NEW MEDICAL SCHOOLS

The University of Alabama has virtually completed arrangements whereby a third year class will commence its work in the autumn of 1945. This school, formerly an approved institution of the basic medical sciences, employs the facilities of the Hillman and Jefferson hospitals in Birmingham for clinical instruction. The project appears to be under competent leadership and seems to have arranged for adequate clinical facilities.

The University of Missouri now conducts an approved school of the basic medical sciences at Columbia, Mo. It is proposed that this institution be expanded to a full four year medical school, but there is difference of opinion as to whether the new institution should be located in Columbia, Mo., where the university is located, or in Kansas City, where extensive hospital facilities exist.

The University of North Carolina has participated in a statewide plan for the improvement of medical care, and it has been recommended that the University of North Carolina be expanded to the four year status from its present designation as an approved school of the basic medical sciences. It is suggested that a state hospital be constructed in Chapel Hill, where the entire medical school would be located.

In North Dakota and in South Dakota and Mississippi proposals have also been made for expansion from the two year to the four year status.

This tendency on the part of the schools of basic medical sciences to expand into four year medical schools can be attributed primarily to three factors: first, it is becoming increasingly difficult for those who complete the work of the basic medical sciences to gain acceptances to the junior classes of approved four year institutions; secondly, it is generally recognized that modern instruction in the basic medical sciences is handicapped unless clinical facilities are available. This applies primarily to work in pathology but bears on the work of other departments as well and is particularly the case in the teaching of physical diagnosis, which should be completed by the time a student enters the junior year of the medical school. Third, it is the belief in some instances that provisions for the complete training of a medical student within the bounds of a given state will stimulate graduates to remain in that state to practice medicine and therefore relieve the shortage of physicians in needy areas. This tendency toward the expansion of the two year institutions has been encouraged by the Council on Medical Education and Hospitals in instances in which it is apparent that facilities for such development are available. In other instances it is highly questionable whether adequate facilities and funds are available. In such cases the schools of basic medical sciences would serve best by strengthening the programs they now conduct rather than attempt a poorly conceived expansion to a medical school offering the full four year course of instruction at a mediocre or poor level.

INSPECTION OF HOSPITALS, TECHNICAL SCHOOLS
AND SPAS, 1944

In the accompanying table are summarized the inspections of hospitals, technical schools and spas made by the Council during the calendar year 1944.

Inspections of Hospitals, Technical Schools and Spas

Hospitals	
Intern training	26
Residency and fellowships	61
Intern training and residencies	13
Registration	15
Total	115
Individual residencies and fellowships investigated	151
Technical Schools	
Clinical laboratory schools	15
Physical therapy schools	4
Occupational therapy schools	5
Medical record librarian schools	2
Total	26
Spas	1
Total number of days in the field	171

CENSUS OF HOSPITALS

The twenty-fourth annual hospital report of the Council was published in the Hospital Number of THE JOURNAL, March 31, 1945. This survey included 6,611 registered hospitals as compared with 6,655 in 1943. The reduction in the number of hospitals, however, was not accompanied by a correspond-

Approved Hospitals, Jan. 1, 1945

Hospital Register	
Hospitals registered, Jan. 1, 1944	6,769
Registered during 1944	114
Closed or transferred to Unclassified File	175
Hospitals registered, Dec. 31, 1944	6,709
Approved Internships	
Hospitals approved, Jan. 1, 1944	770
Approved during year	23
Removed from approved list	16
Hospitals approved, Dec. 31, 1944	777
Approved Residencies and Fellowships	
Hospitals approved, Jan. 1, 1944	738
Approved during year	40
Removed from approved list	2
Hospitals approved, Dec. 31, 1944	776
Schools for Clinical Laboratory Technicians	
Approved schools, Jan. 1, 1944	241
Approved during year	14
Removed from approved list	2
Approved schools, Dec. 31, 1944	253
Schools for Physical Therapy Technicians	
Approved schools, Jan. 1, 1944	27
Approved during year	6
Removed from approved list	2
Approved schools, Dec. 31, 1944	31
Schools of Occupational Therapy	
Approved schools, Jan. 1, 1944	10
Approved during year	7
Removed from approved list	0
Approved schools, Dec. 31, 1944	17
Medical Record Librarian Schools	
Approved schools, Jan. 1, 1944	10
No schools approved or removed	
Approved schools, Dec. 31, 1944	10
X-Ray Schools	
Approved schools on initial list, Nov. 15, 1944	112

ing loss in bed capacity; on the contrary, the construction of additional units and the expansion of existing services resulted in a net gain of 80,691 beds, the equivalent of a new 220 bed hospital for each day of the year. The present capacity of the registered hospitals is 1,729,945 beds, including 1,352,278

in governmental hospitals and 377,667 in the nongovernmental institutions. Again the principal gain was in the federal group, which now has 551,135 beds, or 74,462 more than were reported in 1943.

The most striking feature of the Council's report is the continued expansion of inpatient hospital care, as evidenced by the unprecedented total of 16,036,848 admissions in 1944, an increase of 662,150 in relation to the previous survey. In this connection it may be noted that the nongovernmental hospitals, which have only 22 per cent of the beds, received 59.2 per cent of the total admissions. The general hospitals had 15,060,403 admissions, or 93.9 per cent of all patients admitted to the registered hospitals last year. The tremendous volume of hospital service is also indicated in the average daily census of 1,299,474, which represents a total of 475,607,484 patient days in the twelve months period under consideration. In addition to the number of patients treated, the registered hospitals gave care to 1,919,976 newborn infants. When compared with the previous report, the number of births show a reduction of 4,615, whereas increases of 265,659 and 253,992 occurred in 1942 and 1943 respectively.

A special study of hospital facilities for children showed that 61,262 beds are regularly available for this purpose exclusive of bassinets for newborn infants. The general hospitals have the greatest number of children's beds, a total of 36,462. Reports were also included regarding internships and residencies, schools of nursing education and nursing and technical personnel. At present 718 civilian hospitals are approved for intern training and 692 for residencies in specialties. These include 337 hospitals which offer acceptable training in both classifications. Accredited schools of nursing education are now conducted in 1,439 hospitals with a total enrolment of 129,879 students including Cadet Nurses. In 1943 the number of student nurses was 110,222.

RECOMMENDED CHANGE IN THE ESSENTIALS
OF AN ACCEPTABLE MEDICAL SCHOOL

The Council on Medical Education and Hospitals recommends that the chemistry requirement listed in the Essentials of an Acceptable Medical School, page 4, under VII, "Requirements for Admission" (to a medical school) be changed from the present wording, which reads "general and inorganic chemistry," to read "inorganic and organic chemistry." Practically all medical schools require training in organic chemistry, which is essential for the proper mastery of the medical school material, particularly in the field of biochemistry.

RECOMMENDED CHANGE IN ESSENTIALS OF AN
ACCEPTABLE SCHOOL FOR PHYSICAL
THERAPY TECHNICIANS

The Council recommends to the House of Delegates that the Essentials of an Acceptable School for Physical Therapy Technicians be changed by the addition of the sentence "Technicians are trained in these schools to work under the direction of qualified physicians and not as independent practitioners of physical therapy." This statement should be added after item 1 under section I. "Organization." A statement similar to this now appears in the essentials for schools for clinical laboratory technicians, x-ray technicians and occupational therapists.

RECOMMENDED REVISION OF THE ESSENTIALS OF
AN ACCEPTABLE SCHOOL FOR MEDICAL
RECORD LIBRARIANS

The Council recommends to the House of Delegates that the Essentials of an Acceptable School for Medical Record Librarians be changed substituting the following for the material now included under "V. Curriculum":

V. CURRICULUM

1. The course of training should include not less than fifty weeks of theoretical instruction and practical hospital experience.

2. Theoretical instruction may be presented by informal conferences or formal lectures and should include the following:

	Recommended Time (Clock Hours)
Anatomy and physiology.....	100
Fundamentals of medical science.....	30
Bacteriology, doctors' lectures in all medical specialties	
Medical terminology	30
Etymology	
Abbreviations	
Drug terms	
Nomenclatures—disease, operative, symptomatology	
Medical record library science.....	100
History	
Medicolegal	
Ethics	
Securing and preserving	
Statistics	
Indexes	
Management	10
Hospital organization	
Interdepartmental relations	
Purchase of supplies, etc.	
Supervision, function and techniques	
Psychology (recommended if not specified for admission)	(25)
Total clock hours.....	270

3. Practical training should involve all activities associated with the care of medical records. This should include:

Orientation
Filing
Outpatient department and social service
Admission and discharge routine, including hospital statistics
Adjunct department records
Secretarial practice
Medicolegal relationships
Indexes, including comparative and group studies
Admitting office
Patient census
Medical library
Department management

Sufficient time should be devoted to each assignment so that students may become familiar with all functions of the medical record library and the various departments of the hospital. Additional experience in the handling of records in the pathology and radiology departments is recommended. To augment the training program, field trips should be arranged when possible to visit other hospitals and study their record library equipment and methods.

These changes are in accordance with policies and curriculums now in operation in the approved schools for medical record librarians. They were developed in collaboration with representatives of the American Association of Medical Record Librarians and have the approval of that organization.

NURSING

In June 1944 the House of Delegates passed the following resolution:

WHEREAS, There is a very obvious deficiency in trained personnel for nursing; and

WHEREAS, The demands for adequate nursing are apt to be greater; be it

Resolved, That the Council on Medical Education and Hospitals communicate with the various national organizations concerned with nursing for the purpose of discussing the present nursing situation in order that proper nursing bodies may consider the matter with a view toward its amelioration.

Pursuant to this direction by the House of Delegates, the Council has appointed Dr. F. H. Arestad as a representative on the National Nursing Council for War Service. In addition, the Secretary is a member of the Special Committee on Accrediting of the National League of Nursing Education. Also Dr. Herman G. Weiskotten is a member of the National Organization of Public Health Nursing and Dr. Charles Gordon Heyd has been representing the Council on the National Association of Practical Nurse Education. Nursing problems of wartime have been under frequent consideration by these bodies, with which the Council keeps in close touch. The Council has collaborated with the National Nursing Council for War Service in the collection of extensive data concerning nursing personnel in various categories in the registered hos-

pitals of the country. This material was published in the 1945 Hospital Number of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (March 31, 1945).

BOARD OF GENERAL PRACTICE

The resolution presented to the House of Delegates in June 1944 calling for the establishment of a board of general practice reads as follows:

Resolved, That there shall be and is hereby constituted a Board of General Practice of the general practice sessions of the Association, which shall consist of seven members of the American Medical Association, all of whom shall be qualified and recognized general practitioners; that said Board of General Practice shall be duly organized as a corporate body; and be it further

Resolved, That said Board of General Practice shall be and is vested with all powers necessary for the regulation, control, supervision and gradation of the general practice sessions.

The House of Delegates referred this resolution to the Council on Medical Education and Hospitals for transmission to the Advisory Board for Medical Specialties. On transmittal of this resolution to the Advisory Board for Medical Specialties it was stated that consideration of this resolution by the Advisory Board would depend on the formulation of more concrete objectives to be presented in writing to the Advisory Board for Medical Specialties by an organized group representing the proposed board. As yet such objectives have not been presented to the Advisory Board for Medical Specialties or its Committee on Standards and Examinations.

TEACHING OF PHARMACOLOGY

At the June 1944 meeting of the House of Delegates the Reference Committee on Reports of Officers stated that it "desires to endorse his [President-Elect Kretschmer's] suggestion that the Council on Medical Education and Hospitals give further consideration to improvements in the teaching of pharmacology in medical schools, particularly as this applies to prescription writing and drug therapy." In accordance with these directions, discussions have been held with Dr. Austin E. Smith, Secretary of the Council on Pharmacy and Chemistry, who has completed an extensive study of the requirements for adequate instruction in pharmacology, including prescription writing and drug therapy. The results of this study by Dr. Smith are being presented for publication in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. To assist in carrying out its instructions, the Council will distribute reprints of this paper to the medical schools.

INSTRUCTION IN MEDICAL SOCIOLOGY, MEDICAL ECONOMICS AND MEDICAL ETHICS

The Council on Medical Education and Hospitals was requested by the Council on Medical Service and Public Relations and directed by the House of Delegates at the June 1944 meeting, as a result of the report of the Reference Committee on Legislation and Public Relations, to stimulate the development in medical schools of courses in medical sociology, medical economics and medical ethics. Pursuant to these directions a study was made of the extent to which such work is now offered in approved medical schools. Of the seventy-seven approved medical schools and schools of the basic medical sciences in the United States, forty-two now offer some work in this field. It is apparent that there is considerable lack of uniformity and great differences in the amount of time devoted to these subjects in these schools. In some instances material in this field is offered in conjunction with other courses. It is suggested that the Council on Medical Service and Public Relations give thought to the preparation of an outline for a course in this field giving the subject matter which ought to be covered and possible source materials for instructors as well as students in such a course. In a number of instances a lack of information and of organized sources of material have militated against the presentation of adequate work in this field.

COUNCIL PUBLICATIONS

Major publications during 1944 and thus far in the present year include:

Hospital Service in the United States.
State Board Number of THE JOURNAL.
Medical Education in the United States and Canada.

Compilation of Special Reprint Edition of Papers prepared for the 1945 Annual Congress on Medical Education and Licensure.
Choice of a Medical School.
Postwar Graduate Medical Education.
Approved Colleges of Arts and Sciences.
Schools for Clinical Laboratory Technicians.
Schools for Physical Therapy Technicians.
Schools of Occupational Therapy.
Schools for Medical Record Librarians.
Schools for X-Ray Technicians.

COLLABORATION WITH OTHER AGENCIES

The Council continues to collaborate closely with several agencies, including (1) the Association of American Medical Colleges in all matters pertaining to medical schools, (2) the various American specialty boards in matters relating to the approval of residencies, (3) the Advisory Board for Medical Specialties, with which the Council held a joint meeting in February 1945, (4) the American Council on Education in problems associated with legislation providing postwar education for veterans and plans for college accreditation of academic work done by soldiers and sailors in various military educational programs, (5) the American College of Surgeons, (6) the American Hospital Association, (7) the Committee on Postwar Medical Service, (8) the Federation of State Medical Boards of the United States, (9) the Armed Forces Institute, (10) the Institute of International Education, (11) the Office of the Coordinator of Inter-American Affairs, (12) the State Department, (13) the Pan American Sanitary Bureau, (14) the American Dental Association, (15) the National Nursing Council for War Service, (16) the National League of Nursing Education, (17) the National Organization of Public Health Nursing, (18) the National Association of Practical Nurse Education and (19) the Joint Orthopedic Nursing Advisory Service.

Government agencies with which there have been frequent conferences and close cooperation have included the offices of the Surgeons General of the Army and Navy and Public Health Service, the Army Specialized Training and Navy V-12 officials, the Procurement and Assignment Service, the Social Security Board, the War Production Board and the Office of Vocational Rehabilitation.

APPRECIATION

In the course of its work involving contacts with government and military officials as well as officers and officials of medical schools, hospitals, licensing boards and technical schools the Council has met with the utmost in cooperation at every hand. It is particularly gratifying to note the willingness with which all concerned cooperate with members of the Council and its staff in efforts to maintain adequate educational standards in these difficult times. The readiness in supplying data for the special numbers of *THE JOURNAL* is deeply appreciated. Such information finds wide usage by government bodies, hospitals, medical schools, medical students and physicians. The Council especially desires to express its appreciation to the general officers, the trustees and the members of the House of Delegates of the American Medical Association for the wholehearted manner in which they have cooperated with the Council and assisted it in every activity of the past year.

Respectfully submitted,

RAY LYMAN WILBUR, Chairman.
H. G. WEISKOTTEN.
J. H. MUSSER.
HARVEY B. STONE.
REGINALD FITZ.
RUSSELL L. HADEN.
CHARLES GORDON HEYD.
VICTOR JOHNSON, Secretary.

Committee on American Health Resorts

The Committee on American Health Resorts respectfully submits the following report for the year 1944:

The Committee on American Health Resorts functioned in 1944 under considerable difficulties. Of the normal membership of five, one place was vacant and Lieut. Col. Euclid M. Smith was occupied with military duties.

The principal accomplishment of the Committee during 1944 was the publication of papers on physical therapy and spas under the following titles:

"Nature of Natural Facilities Used at Health Resorts," by W. S. McClellan and Charles I. Singer.
"The Types of Treatments Administered at Health Resorts," by M. B. Jarman.
"The Economic Aspects of Health Resort Therapy," by A. M. Simons.
"Underwater Therapy at Spas," by Euclid Smith and Billie Crook.
"The Place of Health Resort Therapy in the Treatment of Conditions Affecting the Nervous System," by George B. Fletcher.
"The Place of Health Resort Therapy in Rehabilitation Following Traumatic and Other Injuries," by Frank Krusen.
"Thalassotherapy," by Charles I. Singer and Kenneth Phillips.

The first seven articles prepared under the auspices of the Committee were published in 1943.

There was no meeting of the Committee on American Health Resorts in 1944, but a meeting was held early in 1945.

(To be continued)

Medical Legislation

MEDICAL BILLS IN CONGRESS

Scientific Research

Joint hearings have been scheduled by the Senate Committees on Commerce and Military Affairs on three bills relating to the formulation of a federal program for scientific research, S. 1297, S. 1248 and S. 1285. The hearings will begin on October 8 and will extend, it is anticipated, for a period of from three to four weeks. It is understood that the following witnesses have been invited to testify: Dr. Isaiah Bowman, president of Johns Hopkins, Dr. James B. Conant, president of Harvard, Secretary of War Patterson, Secretary of the Navy Forrestal, Secretary of Commerce Wallace, Secretary of the Interior Ickes, Dr. Vannevar Bush, Director of the Office of Scientific Research and Development, Harold Smith, Director of the Budget, Eric Johnston, president of the United States Chamber of Commerce, Ira Mosher, president of the National Association of Manufacturers, Phillip Murray, president of C. I. O., and William Green, president of A. F. of L.

Army Medical Corps

Senator Langer, North Dakota, has introduced S. J. Res. 97, to provide for replacement of medical personnel commissioned from civilian life with persons trained under the Army specialized training program. This bill proposes that, in order to accelerate the return to civilian life of physicians, dentists and veterinarians who have served in the Army during the war, the services of personnel trained under the Army specialized training program should be utilized to the greatest extent practicable to replace such physicians, dentists and veterinarians.

A bill introduced by Representative Traynor, Delaware, H. R. 4147, proposes to establish a Chiropody Corps in the Medical Corps of the Army and to provide for a Chiropody Reserve Corps. It is pending before the House Committee on Military Affairs.

Navy Nurse Training School

A bill introduced by Representative Price, Florida, proposes to establish a United States Navy Training School for Nurses. The trainees will be selected on the same terms and conditions as midshipmen are selected and admitted to the United States Naval Academy. On graduation, trainees will be commissioned as ensigns in the Navy Nurse Corps and may be assigned to duty with the Navy or to duty in hospitals under the jurisdiction of the Veterans Administration.

Miscellaneous

A bill introduced by Representative Larcade, Louisiana, H. R. 4132, provides for the discharge or release from active duty of those members of the armed forces desiring to resume their education or training.

A reorganization of the agencies of the government is contemplated by a bill introduced by Representative Manasco, Alabama, H. R. 4129. This bill has been favorably reported by the House Committee on Expenditures in the Executive Departments.

The Vannevar Bush Report

This analysis was presented to the Committee on Postwar Medical Service on September 23 by a subcommittee of the Committee on Postwar Medical Service appointed by that body to study the Bush report and make recommendations to the entire committee.

1. THE VANNEVAR BUSH REPORT

The Bush report was made in response to a request by President Roosevelt for advice concerning the desirability of federal financial support of research. The report was made by Dr. Bush in collaboration with a number of leaders in science who were organized into four separate committees: (1) Medical Advisory Committee, Dr. W. W. Palmer chairman, (2) Committee on Science and the Public Welfare, Dr. Isaiah Bowman chairman, (3) Committee on Discovery and Development of Scientific Talent, Dr. Henry Allan Moe chairman, and (4) Committee on Publication of Scientific Information, Dr. Irvin Stewart chairman. Dr. Bush said "Although the report which I submit herewith is my own, the facts, conclusions and recommendations are based on the findings of the committees."

The report can be considered under two main headings: (1) a development of the main reasons for federal support of research and (2) a specific plan of implementation in the organization of a National Research Foundation as a separate agency of the executive branch of the federal government.

2. REASON ADVANCED IN THE REPORT FOR FEDERAL SUPPORT OF RESEARCH

The most compelling argument cited in the report for a continuation of federal support of research is the success with which the wartime research of the Office of Scientific Research and Development was conducted in the medical and physical sciences for purposes of national defense. These achievements are claimed to warrant federal support for the extension of research.

The report maintains that, in the main, such work can best be done in our universities, colleges and research institutes under their own organization and administration. Federal support can in many important ways enable these institutions to intensify their research programs with the expectation of even greater success than at present, particularly in view of the mounting costs of research and the limited funds for such purposes in many of these institutions.

Another argument for federal support advanced in the report is the necessity of insuring a continuous availability of research workers now and in the future. This aim can be furthered through the provision of scholarships and fellowships for men and women of promise at the undergraduate and graduate levels.

Your subcommittee accepts the force of these arguments and agrees with the conclusions, subject to appropriate safeguards. The subcommittee on the Vannevar Bush report to the President favors federal support of research: it is of the opinion that the support of scientific research by the federal government presents a challenging and compelling opportunity for government to foster the public welfare by assisting in the support of scientific research. To be most effective, this support should leave the policy, personnel and method and scope of research to the colleges, universities and research institutions themselves. Institutional and personal liberty in research should be fully safeguarded. The responsibility for such safeguards should be entrusted to men of scientific achievement, knowledge and leadership.

3. IMPLEMENTATION: RECOMMENDATION OF THE REPORT FOR LEGISLATION

The Bush report recommends that a separate agency be established, to be known as the National Research Foundation; it should consist of nine "members" selected by the President, who should be persons "not otherwise connected with the government and not representative of any special interest." The report strongly urges that the members be given complete freedom in

the organization and operation of the foundation. The members would elect their own chairman annually. They also would appoint a director as chief executive officer of the foundation and the chairman and five members of each of the five following proposed divisions, after requesting and considering "recommendations from the National Academy of Sciences, which should be asked to establish a new National Research Foundation nominating committee in order to bring together the recommendations of scientists in all organizations."

The five divisions are (1) Division of Medical Research, (2) Division of Natural Sciences, (3) Division of National Defense (which also includes Army and Navy representation), (4) Division of Scientific Personnel and Education and (5) Division of Publications and Scientific Collaboration.

The foundation would make grants to educational and research institutions for support of scientific research on recommendation of the divisions. It is proposed that these funds be made available not only to institutions of "a demonstrated research capacity" but also to those where "latent talent or creative atmosphere affords promise of research success."

Dr. Bush gives the following "Five Fundamentals" which must underlie such a government program:

1. Whatever the extent of support may be, there must be stability of funds over a period of years, so that long range programs may be undertaken.

2. The agency to administer such funds should be composed of citizens selected only on the basis of their interest in and capacity to promote the work of the agency. They should be persons of broad interest in and understanding of the peculiarities of scientific research and education.

3. The agency should promote research through contracts or grants to organizations outside the federal government. It should not operate any laboratories of its own.

4. Support of basic research in the public and private colleges, universities and research institutes must leave the internal control of policy, personnel and the method and scope of the research to the institutions themselves. This is of the utmost importance.

5. While assuring complete independence and freedom for the nature, scope and methodology of research carried on in the institutions receiving public funds, and while retaining discretion in the allocation of funds among such institutions, the foundation proposed herein must be responsible to the President and the Congress. Only through such responsibility can we maintain the proper relationship between science and other aspects of a democratic system. The usual controls of audits, reports, budgeting and the like should, of course, apply to the administrative and fiscal operations of the foundation, subject however to such adjustments in procedure as are necessary to meet the special requirements of research.

Basic research is a long term process—it ceases to be basic if immediate results are expected on short term support. Methods should therefore be found which will permit the agency to make commitments of funds from current appropriations for programs of five years' duration or longer. Continuity and stability of the program and its support may be expected (a) from the growing realization by the Congress of the benefits to the public from scientific research and (b) from the conviction which will grow among those who conduct research under the auspices of the agency that good quality work will be followed by continuing support.

Research now being conducted in existing government agencies is to remain under their auspices, with the foundation serving in a consultative, advisory and correlating capacity.

The scholarship program involves 6,000 four year undergraduate scholarships to promising high school graduates (21,000 at any one time, after the program is in full operation) and 300 three year graduate scholarships (900 at any one time, after a while) at an annual cost of \$30,000,000. It also makes provision for fellowships for advanced training in fundamental research. Recipients of these scholarships and fellowships are to be enrolled in a National Science Service, subject to call by the government "in time of war or other national emergency declared by Congress or proclaimed by the President."

Regarding patents, the report states:

The public interest will normally be adequately protected if the government receives a royalty-free license for governmental purposes under any patents resulting from work financed by the foundation. There should be no obligation on the research institution to patent discoveries made as a result of support from the foundation. There should certainly not be any absolute requirement that all rights in such discoveries be assigned to the government, but it should be left to the discretion of the director and the interested division whether in special cases the public interest requires such an assignment. Legislation on this point should leave to the members of the foundation discretion as to its patent policy in order that patent arrangements may be adjusted as circumstances and the public interest require.

The proposed budget of the foundation is \$33.5 million in the first year, to reach \$122.5 million in five years, allocated as follows:

Activity	Millions of Dollars	
	First Year	Fifth Year
Division of Medical Research.....	5.0	20.0
Division of Natural Sciences.....	10.0	50.0
Division of National Defense.....	10.0	20.0
Division of Scientific Personnel and Education....	7.0	20.0
Division of Publications and Scientific Collaboration.....	0.5	1.0
Administration.....	1.0	2.5
	33.5	122.5

4. SUGGESTIONS OF THE SUBCOMMITTEE

Your subcommittee approves in general the recommendations of the Bush report with respect to implementation subject to the following suggestions:

(a) In the opinion of the subcommittee it would be appropriate if the National Academy of Sciences could advise with respect to the selection of the members of the foundation in the manner recommended in the report for the appointment of members constituting the divisions.

(b) The interests of the five divisions should be adequately represented in the membership of the foundation.

(c) While the divisions should be administratively independent, provision should be made for free interchange of information and discussion.

(d) The five fundamental principles stated in the report would appear to be essential for the effective functioning of the foundation.

(e) The subcommittee questions the advisability or necessity of organizing the "National Science Service" to secure the services to the government in time of emergency of the recipients of the foundation's scholarships or fellowships.

(f) The proportion of funds suggested as an allotment to medical research would seem to be a fair initial estimate but should be considered subject to modification in the light of experience.

(g) Even though there should be federal support of research, it is necessary to preserve the support of research by private foundations and other donors; tremendous advances in science have been made in the past from such support, and it should continue undiminished in the future.

(h) The subcommittee considers the problem of the federal support of the social sciences to be outside the scope of its deliberations.

(i) The subcommittee wishes to reiterate the necessity for complete freedom of the foundation members to allot funds and for the participating institutions to exercise complete freedom in carrying out the research for which they receive support.

(j) In the opinion of the subcommittee, the Magnuson bill (S. 1285) more nearly meets the provision of the Bush report in safeguarding institutional and individual liberty in research than do other pending bills.

5. CONCLUSION

The subcommittee recommends (1) that the Bush report, subject to the qualifications set forth, receive the strong support of the Committee on Postwar Medical Service, (2) that the various agencies represented in the Committee on Postwar Medical Service give consideration to the contents of the subcommittee's report in their public pronouncements and in congressional hearings in which they might be invited to participate and (3) that consideration of proposals and legislation for new federal programs to assist in medical research within restricted areas or specialties of medicine should be delayed until the establishment of some such comprehensive program as that proposed in the Bush report covering all the fields of medicine and natural sciences.

Submitted by Francis G. Blake, Chairman, Frederick A. Collier, Victor Johnson, W. W. Palmer and Alphonse M. Schwittalla.

Committee on Scientific Exhibit

MOTION PICTURES FOR CADET NURSES

The U. S. Office of Education, with the cooperation of the Nurse Education Division of the U. S. Public Health Service, has completed thirteen motion pictures to aid in the training of cadet nurses. The films are all 16 mm., sound. They are accompanied by filmstrips for review, discussion and study, together with an instructor's manual.

The films may be purchased from visual education dealers or from Castle Films, 30 Rockefeller Plaza, New York 20.

- OE 403. *Bathing the Patient (Home Care)*. 24 minutes.
- OE 404. *Feeding the Patient*. 15 minutes.
- OE 406. *The Vital Signs and Their Interrelation—Body Temperature, Pulse, Respiration, Blood Pressure*. 32 minutes.
- OE 408. *Therapeutic Use of Heat and Cold: Part I. Administering Hot Applications*. 21 minutes.
- OE 409. *Therapeutic Uses of Heat and Cold: Part II. Administering Cold Applications*. 22 minutes.
- OE 410. *Hydrotherapy*. 22 minutes.
- OE 411. *Radiotherapy*. 17 minutes.
- OE 412. *Care of the Newborn Baby*. 31 minutes.
- OE 414. *Fundamentals of Massage*. 12 minutes.
- OE 417. *Care of the Patient with Diabetes Mellitus (Uncomplicated)*. 29 minutes.
- OE 418. *Care of the Patient with Diabetes Mellitus (Complicated)*. 29 minutes.
- OE 419. *Care of the Cardiac Patient*. 33 minutes.
- OE 422. *Teaching Crutch Walking*. 13 minutes.

BRITISH MEDICAL MOTION PICTURES

The British Information Services has made available in the United States several motion pictures. They are all 16 mm., sound. Copies may be rented or purchased from the various offices of the British Information Services or from the British Consular Offices. Information may be obtained from the Film Officer, British Information Services, 360 North Michigan Avenue, Chicago 1.

The following films deal with rehabilitation:

- Psychiatry in Action*. 7 reels, 62 minutes.
Deals with war neuroses, showing special treatments, including physical rehabilitation and occupational therapy.
- Back to Normal*. 2 reels, 16 minutes.
Deals with the fitting and use of artificial limbs.
- Accident Service*. 4 reels, 40 minutes.
Shows the general principles of industrial rehabilitation.
- Hospital Schools*. 1 reel, 11 minutes.
Depicts rehabilitation of children, combined with elementary and high school education.
- Life Begins Again*. 2 reels, 21 minutes.
Shows the rehabilitation of men injured in industry as well as in war.
- Plastic Surgery in Wartime*. 3 reels, 27 minutes.
Gives a generalized, nontechnical view of what can be expected of plastic surgery.

Other motion pictures include medical subjects of interest to both the physician and the layman. Following are some of the subjects:

- Surgery in Chest Diseases*. 4 reels, 43 minutes.
A specialized film for the physician, illustrating the treatment of chest diseases.
- Scabies*. 4 reels, 37 minutes.
Shows the cause and treatment of "the itch."
- Blood Transfusion*. 4 reels, 39 minutes.
Survey of blood transfusion, its development in international medical history and its wartime techniques.
- Out of the Night*. 1 reel, 11 minutes.
Describes the education of the blind in England.
- Men in Danger*. 2 reels, 19 minutes.
A prewar film dealing with industrial accidents and some of the major occupational diseases.
- Rat Destruction*. 1 reel, 10 minutes.
Shows how to deal with the menace of urban rats.
- No Accidents*. 1 reel, 10 minutes.
Emphasizes the importance of routine observance of safety precautions in factories.

Bureau of Information

SUMMARY SHEETS FROM GEORGIA AND MAINE

Completed county summary sheets have been received from counties in Georgia through Dr. E. D. Shanks, secretary, Medical Association of Georgia, and from Maine through Dr. Frederick H. Carter, secretary, Maine Medical Association.

The accompanying tables give data from selected counties in these states. The column giving the number of persons per telephone is used as one index of the economic status of the area.

Georgia

County ¹	Principal Cities ²	Population	Physicians Under 65	Persons per Physician	Persons per Telephone ³
Appling.....	Boxley.....	12,706	4	3,176	59
Atkinson.....		6,253	3	2,084	189
Chatham.....	Savannah.....	150,111	54	2,780	15
Coffee.....	Douglas.....	19,589	7	2,795	71
Floyd.....	Rome.....	53,187	26	2,046	20
Jones.....		6,943	1	6,943	51
Mitchell.....	Camilla.....	20,108	6	3,351	54
	Pelham.....	2,598			
Quitman.....		2,959	1	2,959	..
Rabun.....		6,499	2	3,249	87
Walton.....	Monroe.....	18,842	3	6,281	48
		4,168			

Maine

County ¹	Principal Cities ²	Population	Physicians Under 65	Persons per Physician	Persons per Telephone ³
Cumberland.....	Portland.....	152,877	74	2,066	7
	South Portland.....	73,043			
	West Brook.....	15,781			
		11,687			
Franklin.....	Farmington.....	16,469	6	2,745	8
	Wilton.....	3,743			
	Jay.....	3,228			
		2,858			
Hancock.....	Bar Harbor.....	27,095	14	1,935	8
	Ellsworth.....	4,378			
	Bucksport.....	3,011			
		2,927			
		68,193	39	1,749	7
		10,260			
		16,688			
	Gardiner.....	6,041			
Knox.....	Rockland.....	22,875	11	2,080	7
	Camden.....	8,829			
	Thomaston.....	3,551			
		2,533			
Oxford.....	Rumford.....	35,809	19	1,885	8
	Mexico.....	10,230			
	Paris.....	4,431			
		4,091			
Penobscot.....	Bangor.....	86,442	46	1,879	8
	Old Town.....	29,822			
	Brewer.....	7,688			
		6,510			
Piscataquis.....	Dover-Foxcroft.....	17,147	6	2,858	11
	Milo.....	4,015			
		3,000			
Waldo.....	Belfast.....	16,025	4	4,006	7
		5,549			
Washington.....	Calais.....	29,833	11	2,712	11
	Eastport.....	5,161			
	Lubec.....	3,346			
		3,708			

1. Bureau of Census, estimated population 1943.

2. Bureau of Census, population 1940.

3. Based on 1940 figures, American Telephone and Telegraph Company.

Many physicians over 65 years of age are carrying on large practices and are doing much to maintain the health of communities. They are not included in computing physician population ratios, however, as the future needs of the communities will be largely dependent on younger physicians.

A current knowledge of needs of communities for doctors is essential if adequate help is to be given veteran medical officers in their problems of medical practice. These needs can be indicated on the summary sheets under "Remarks" by the state and county secretaries and are then available to inquiring medical officers. Frequent reports from state and county medical societies about needs of communities for doctors will help maintain current files and will increase the service of the Bureau.

With the information available on a completely filled out summary sheet, it is readily possible for an interested medical officer to make an initial selection of areas in which he might like to practice. Since vacancies are held open in many communities for doctors now in military service, further investigation by direct correspondence with state and county medical societies will always be necessary to insure an accurate report of the needs of individual communities.

Committee on American Health Resorts

BAKER HOTEL, MINERAL WELLS, TEXAS, ACCEPTABLE FOR LISTING

The Committee on American Health Resorts has authorized publication of the following statement on the acceptance of the Baker Hotel, Mineral Wells, Texas. A copy of the rules on which the Committee bases its action will be sent on request.

W. W. BAUER, M.D.

The Baker Hotel, Mineral Wells, Texas, applied for listing by the Committee on American Health Resorts of the American Medical Association. The Committee has been furnished with all the information required under its rules, including copies of advertising and promotional material, and a report on an inspection by a Committee representative. The submitted information and the report indicate that the institution is operated in accordance with the rules of the Committee. Minor adjustments in policies of the hotel necessary to insure compliance with the rules have been made.

The Committee on American Health Resorts is satisfied that Baker Hotel is being operated in accordance with the rules of the Committee and has placed this institution on the list of American Health Resorts complying with the Committee rules, for a period of one year beginning Sept. 1, 1945. This listing may be continued for three year periods if the listed institution continues to comply with the rules.

Coming Medical Meetings

American Medical Association House of Delegates, Chicago, Dec. 3-6. Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

American Ophthalmological Society, Hot Springs, Va., Nov. 12-14. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Society of Tropical Medicine, Cincinnati, Nov. 12-15. Dr. Joseph S. D'Antoni, Tulane Ave., New Orleans 13, Secretary.

Association of American Medical Colleges, Pittsburgh, Oct. 29-31. Dr. Fred C. Zappfe, 5 S. Wabash Ave., Chicago, Secretary.

Delaware Medical Society of, Wilmington, Oct. 8-10. Dr. W. H. Speer, 917 Washington St., Wilmington, Secretary.

Indiana State Medical Association, French Lick, Nov. 6-8. Mr. Thomas A. Hendricks, 23 E. Ohio St., Indianapolis 4, Secretary.

Kentucky State Medical Association, Lexington, Oct. 29-31. Dr. P. E. Blackerby, 620 S. Third St., Louisville, Secretary.

New York Medical Society of the State of, House of Delegates, Buffalo, Oct. 8-9. Dr. W. P. Anderton, 292 Madison Ave., New York 17, Secretary.

Omaha Mid-West Clinical Society, Omaha, Nebraska, Oct. 22-26. Dr. R. W. Fouts, 107 S. Seventeenth St., Omaha, Secretary.

Pennsylvania Medical Society of the State of, House of Delegates, Philadelphia, Oct. 23-24. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh 22, Secretary.

Southern Medical Association, Cincinnati, Nov. 12-15. Mr. C. P. Loran, Empire Bldg., Birmingham 3, Alabama, Secretary.

Tennessee State Medical Association House of Delegates, Nashville, Oct. 20-21. Dr. W. M. Hardy, 706 Church St., Nashville, Secretary.

Virginia Medical Society of, House of Delegates, Roanoke, Oct. 22-23. Miss Agnes V. Edwards, 1200 Clay St., Richmond 19, Secretary.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Dr. Peers Resigns as Mayor of Colfax.—Dr. Robert A. Peers, a member of the Board of Trustees of the American Medical Association and formerly president of the California Medical Association, on July 10 resigned from the city council and as mayor of Colfax. Dr. Peers first was elected to the city council in 1921 and was chosen mayor of the city the following year.

Heart Association Meetings.—The annual postgraduate symposiums on heart disease held under the auspices of the California Heart Association will be given as follows:

San Francisco, October 17-20. Physicians may register with the San Francisco Heart Committee, 604 Mission Street, San Francisco 5.

San Diego, October 22. Symposium sponsored by the San Diego County Medical Society.

Los Angeles, October 24-26. Physicians may register with the Los Angeles Heart Association, 117 West 9th Street, Los Angeles 15.

Included among the guest speakers will be Dr. Samuel A. Levine, Boston; Col. Irving S. Wright, M. C., and Dr. James J. Waring, Denver.

Grant for Epilepsy Research.—Research now in progress on the control or prevention of epilepsy will be aided by a grant from C. S. Morse, San Francisco, according to an announcement from Robert G. Sproul, LL.D., president of the University of California, Berkeley, in the *University of California Club Sheet*, September 18. Within the next three years \$9,000 will be given to supplement the Mother Lode Fund, which was established to finance epilepsy in the department of neurology under Dr. William J. Kerr, professor of medicine in the medical school on the San Francisco campus of the university (THE JOURNAL, March 17, p. 663).

DELAWARE

State Medical Meeting in Wilmington.—The one hundred and fifty-sixth annual session of the Medical Society of Delaware will be held at the Academy of Medicine, Wilmington, October 8-10, under the presidency of Dr. I. Lewis Chipman. Among the speakers will be:

Dr. William H. Speer, Wilmington, Excerpts from Activities of Other State Societies.

Dr. Frederick H. Allen, Philadelphia, Mental Hygiene in Children.

Dr. Temple S. Fay, Philadelphia, Problems of Rehabilitation in Patients with Cerebral Palsy.

Dr. Karl M. Hauser, Philadelphia, Early Malignancy of the Larynx: Its Detection and Treatment.

Lieut. Arthur G. Lueck (MC), Use and Efficacy of Sulfonamides and Penicillin.

Comdr. Fred A. Butler (MC), Pacific Tropical Diseases. Their Management and Postwar Implication.

Dr. Joseph C. Birdall, Philadelphia, Pyelitis—Early Symptoms, Diagnosis and Treatment.

Dr. William Bates, Philadelphia, Early Determination of Gallbladder Disease and Treatment.

Dr. Paul C. W., Procurement and Assignment.

Lieut. Col. George O. Lison, M. C., Prominent Medical Conditions and Treatment in the Pacific Area.

Lieut. Col. George O. Lison, M. C., Initial Treatment and Methods of Transportation in Fractures of the Long Bones.

Capt. Lewis K. Ferguson (MC), Treatment of Chest and Abdominal Wounds.

Dr. John O. Griffith Jr., Philadelphia, Hypertension—Some of the Results with Later Methods of Treatment.

DISTRICT OF COLUMBIA

Personal.—Major General George C. Dunham, president of the Institute of Inter-American Affairs, was recently awarded the distinguished service medal for his work in advancing the development of Latin America. The citation accompanying the medal read in part that, "through his exceptional performance in discharging duties of great responsibility, large populations in the other Americas have benefited from expanded health and sanitation facilities, standards of living have been raised, and important forward steps have been taken in cooperative effort toward the economic development of the hemisphere." General Dunham has been with the Office of Inter-American Affairs since 1942, directing since that time the most extensive long range Inter-American health and sanitation program ever attempted, according to the *Newsletter of the Health and Sanitation Division of the Institute of Inter-American Affairs*.

FLORIDA

Special Society Election.—Dr. John A. Pines, Orlando, was elected president of the Florida Radiological Society at Orlando recently. Other officers include Drs. Charles M. Gray, Orlando, vice president, and James F. Pitman, Lake City, secretary-treasurer.

ILLINOIS

Special Society Election.—Dr. John J. Madden was chosen president of the Illinois Psychiatric Society at its annual meeting recently. Other officers include Drs. Frances Hannett, vice president, and Charlotte G. Babcock, secretary-treasurer, all of Chicago.

Chicago

Personal.—J. Milo Anderson, assistant superintendent of the University of Chicago Clinics and superintendent of the Chicago Lying-In Hospital and Dispensary, was to take over a new appointment as administrator of the Methodist Hospital, Gary, Ind., August 15.

Gift for Cancer.—Northwestern University has received \$10,000 to establish a fund for "research into the cause and cure of cancer and the amelioration of suffering from that disease." The gift was made by Miss Edith L. Patterson as a memorial to her brother, Floyd Elroy Patterson, to augment a contribution of \$575,000 made to Northwestern University in 1933 for the maintenance of the Patterson Cancer Clinic on the Chicago campus and to serve as a nucleus to establish the new fund.

INDIANA

Personal.—Dr. George W. Boner, North Vernon, has been appointed superintendent of the Madison State Hospital, North Madison, to succeed Dr. Love E. Pennington, resigned.—Dr. Robert M. Maurer, Brazil, has been named health commissioner of Clay County to succeed Dr. Lewis C. Rentschler, Clay City, who resigned because of ill health.

Phi Delta Epsilon Lecture.—Lieut. Col. Truman G. Blocker Jr., M. C., chief of plastic service, Wakeman General Hospital, Camp Atterbury, on July 20 gave the Phi Delta Epsilon Lecture sponsored by the fraternity at the Indiana University Medical Center, Indianapolis. His subject was "Plastic Surgery of War Wounds." A feature of the meeting at which the lecture was given was the presentation to Donald P. Morgan, Indianapolis, junior student in the medical school, of the John F. Barnhill Award for excellence in freshman anatomy.

KANSAS

Changes in Health Officers.—Dr. Harold O. Bullock, Independence, has been made health officer of Montgomery County on a temporary part time basis, succeeding Dr. Blair Points, who resigned July 20. Dr. Fred E. Torrance, Winfield, was named on a similar basis in Cowley County, succeeding the late Dr. Forrest A. Kelley.

First Postgraduate Course.—The University of Kansas School of Medicine, Kansas City, will conduct its first postgraduate course October 29-November 2. The course is designed as a review especially to assist men who have been in service, but a general invitation is extended to all physicians in the state. Applications may be sent either to Dr. Harry R. Wahl, dean of the school of medicine, Kansas City, or to Mr. Harold G. Ingham, director of the extension division, Lawrence. Dr. Edward H. Hashinger, Kansas City, Mo., has been appointed acting director for the graduate medical program. Among the instructors participating in the course will be Drs. Joseph A. Capps, Chicago, on "Pleural Shock"; Herbert A. Wenner, New Haven, Conn., "Polymyositis," and Albert D. Ruedemann, Cleveland, "Differential Diagnosis of the Red Eye."

Expanded Mental Facilities.—Plans are now being completed to provide the University of Kansas Hospital, Kansas City, with enlarged facilities for the treatment of mental patients and for the instruction of medical school students in the specialized line. A former convalescent ward was converted into a psychiatric ward, equipped to serve about 25 patients at a time. It was hoped that the new unit would be completed October 1. According to the *Journal of the Kansas Medical Society*, the addition of the ward was made possible by a \$10,000 appropriation for remodeling and equipment granted by the last Kansas legislature. Another bill gave the probate court authority to send a person to the school of medicine for diagnosis and recommendation as to whether or not he should be committed to a state institution. The new facilities will be used primarily as a diagnostic center, and it is

planned that patients will be short time patients. Organization of the staff has not been completed, but it will be directed by members of the department of neurology and psychiatry of the school of medicine, who will also serve as instructors.

LOUISIANA

Wilbur Smith Named Dean at Louisiana.—Dr. Wilbur C. Smith has been appointed dean at Louisiana State University School of Medicine, New Orleans, to succeed Dr. Beryl I. Burns, resigned effective September 1.

MONTANA

Hospital Survey.—A study to determine the need of hospital construction in Montana is nearing completion. Medical members of the more than twenty members who carried out the study include Dr. Edythe P. Hershey and Dr. Burton K. Kilbourne of Helena, who are on the staff of the state board of health. There are three other physicians on the board: Drs. James C. Shields, Butte, Maurice A. Shillington, Glendive, and E. Martin Larson, Great Falls.

NEBRASKA

Hospital Observes Seventy-Fifth Anniversary.—The Creighton Memorial St. Joseph's Hospital, Omaha, observed its seventy-fifth anniversary September 19 with a banquet. The first patient was admitted to the hospital Sept. 25, 1870. Dr. Bryan M. Riley, an alumnus and former dean of Creighton University School of Medicine, and Dr. John W. Duncan, graduate of the class of 1912 at the university and a former intern at St. Joseph's Hospital, reviewed the history of the institution. A feature of the meeting was the presentation of \$1,000 by the staff to the Sisters of St. Francis to improve the facilities of the chapel of the hospital.

Ordinance to Improve Omaha's Health.—On September 19 an ordinance was introduced in the city council of Omaha to establish an Omaha board of health and provide for a full time health director. The ordinance was proposed by a specially appointed committee named by Mayor Leeman to submit recommendations for reorganization of the city health department. Members of the committee included Drs. Charles W. M. Poynter, dean of the University of Nebraska College of Medicine, chairman, and Dr. Charles M. Wilhelm, dean of Creighton University School of Medicine, Dr. Roy W. Fouts, Dr. J. Jay Keegan and Seymour Smith, attorney, legal adviser. The ordinance proposes that the mayor, the superintendent of schools, an Omaha physician who has practiced in the city at least ten years and two public minded residents constitute the new board of health and serve without pay. The board would have charge of all public health activities and would appoint the health director subject to council approval. The local health department has up to now been under the mayor's supervision. A health commissioner appointed by the mayor and approved by the council has been in direct charge on a part time basis.

Midwest Clinical Assembly.—The thirteenth annual assembly of the Omaha Mid-West Clinical Society will be held at the Hotel Paxton, Omaha, October 22-26. Among the speakers will be:

Dr. Guy A. Caldwell, New Orleans: Treatment of Chronic Osteomyelitis.

Dr. Charles A. Donn, Columbus, Ohio: The Purpuric States.

Dr. Lester R. Drigstedt, Cheyenne: Newer Developments in the Surgical Treatment of Gastrointestinal Ulcers.

Dr. Elmer Belt, Los Angeles: Prostatic Obstructions in Age Groups: Early Infancy to Great Age.

Dr. Henry P. Wagner, Rochester, Minn.: Loss of Vision in Patients with Hypertensive Disease and with Diabetes.

Dr. Archibald D. Campbell, Montreal: Quebec Canada: Prenatal Care and the Interpretation of Certain Symptoms Suggestive of Toxemia of Pregnancy.

Dr. Burrill B. Crohn, New York: Peptic Ulcer as a Modern Concept of a Psychosomatic Disease.

Dr. Alvin R. Moritz, Boston: Death by Violence or Under Suspicious Circumstances: The Medical and Legal Responsibilities of the Attending Physician.

Dr. Sylvester N. Berens, Seattle: Ruptured Intervertebral Disk—An Orthopedic or Neurologic Problem?

Dr. Robert H. Felix, Washington, D. C.: Maladjustment in the Returning Veteran: Comments on Etiology and Symptomatology.

The program will also include clinics and round table discussions. A panel discussion on military medicine will include:

Lieut. Col. Donald J. Wilson, M. C.: Lichenoid Dermatitis.

Lieut. Col. Francis Murphy, M. C.: Prolapsed Intervertebral Disk in the Cervical Region.

Major Thomas I. Dray, M. C.: Trench Foot—Medical Consideration.

Col. John B. Cron, M. C.: Surgical Management of the Unexpended Lung.

Major Joseph E. Milgram, M. C.: Functional Recovery from War Wounds of the Extremities.

NEW YORK

Regional Teaching Day.—"Psychotherapy in General Medicine" will be the theme of a regional teaching day program at the Hudson River State Hospital, Poughkeepsie, October 10, under the auspices of the Dutchess County Medical Society and the Medical Society of the State of New York. Among the speakers will be:

Dr. Teshe A. Osborn: Buffalo: Recognition and Management of Psychiatric Problems in General Practice.

Dr. James H. Wall, White Plains, N. Y.: Psychiatric Aspects of Obstetrics and Gynecology.

Dr. Foster Kennedy, New York: The Neuroses Related to the Mince Depressive Constitution.

District Meeting.—The thirty-ninth annual meeting of the Seventh District Branch of the Medical Society of the State of New York was held at the Clifton Springs Sanitarium and Clinic, Clifton Springs, September 27, under the presidency of Dr. Homer J. Knickerbocker, Geneva. Among the speakers were:

Dr. Edwin C. Foster, Penn. Yarn, Group Practice: Advantages, Disadvantages, Organization and Costs.

Mr. George P. Farrell, director of bureau of medical care insurance: Medical Society of the State of New York, City Prepaid Medical Care Insurance.

Dr. Albert M. Crance, Geneva: Modern Trends in Urology and Their Application to General Practice.

Dr. Leslie B. Mahoney, Rochester, Burns: New and Improved Treatments.

New York City

The First Harvey Lecture.—Dr. James A. Shannon will deliver the first Harvey Lecture in the annual series sponsored by the Harvey Society in affiliation with the New York Academy of Medicine. The lecture will be given October 25 on "Chemotherapy in the Human Malaras."

Antirabic Clinic Opened.—An antirabic clinic in the borough of Queens was reopened in new quarters in Jamaica August 27. The clinic, which has been closed for more than two years, was opened again as a result of the discovery of three rabid dogs in Queens since June 28. Dr. Joseph Steisel is the physician in charge.

Ban on Sale of Antibiotic Drugs Lifted for Bandages Containing Tyrothricin.—At a meeting September 11 the New York City Department of Health approved an exception to the sanitary code to permit the sale of the antibiotic drug tyrothricin without a prescription and within a specified concentration on bandages for external application to the human skin. In announcing the exception Dr. Ernest L. Stebbins, health commissioner, emphasized the fact that the sale of all other antibiotic drugs, including penicillin, still requires the written prescription of a physician, dentist, podiatrist or veterinarian.

PENNSYLVANIA

Personal.—Dr. Sarah I. Morris, Philadelphia, has been appointed resident physician and professor of hygiene at Wilson College, Chambersburg. It was reported September 5 Professor of preventive medicine at Woman's Medical College of Pennsylvania since 1931, Dr. Morris was also director of the student health service of that institution for ten years. She had previously been associate professor in the clinical medical department of the University of Wisconsin Medical School, Madison, and a member of the university's student health department.

Philadelphia

Regional Course on Cancer.—The first of a projected series of regional postgraduate courses to be sponsored by the commission on education of the American College of Radiology in conjunction with selected teaching institutions will be conducted during the week of February 4 at the Philadelphia County Medical Society Building. This first and experimental course will be jointly sponsored by the college and the Philadelphia Roentgen Ray Society. Topics to be discussed include:

February 4: practical consideration of therapy problems concerned with the physics of radium and roentgen rays.

February 5: carcinoma of the female genital tract.

February 6: carcinoma of the breast.

February 7: carcinoma of the head and neck. The Philadelphia Roentgen Ray Society meeting is in the evening.

February 8: carcinoma of the skin and treatment of infections.

February 9: radiation treatment of blood dyscrasias and lymphoblastomas. Cancer detection clinics and important developments in cancer research.

It is proposed to give each registrant a mimeographed outline of the entire course. The program will be arranged to permit a round table discussion of practical problems. Subjects to be presented will include the pathologic, clinical and therapeutic aspects of the conditions under consideration. Teachers will be drawn from the fields of radiotherapy, sur-

gery, oncology, physics, biophysics and pathology. Advance registration may be made by writing to the Commission on Education of the American College of Radiology, 20 North Wacker Drive, Chicago 6.

TEXAS

Alumni-Faculty Foundation Created at Baylor.—The Baylor University College of Medicine, Houston, Alumni-Faculty Foundation has recently been organized "to promote and further medical education in the state of Texas by establishing an endowment and foundation in the interest of the welfare of the college of medicine of Baylor University and for aiding and extending the work and medical activities of the said college of medicine." Officers include Drs. Elisha F. Robbins, president; Herman W. Johnson and Henry A. Petersen, vice presidents, and Thomas P. Kennerly, secretary-treasurer. A group of twelve trustees has also been named. One of the activities of the newly established foundation is the creation of a lectureship in memory of those alumni who died during World War II.

Conference on Pediatrics.—A conference in pediatrics under the joint auspices of the University of Texas Child Health Program and the maternal and child health division of the Texas State Board of Health will be held at the University of Texas Medical Branch, Galveston, November 12-17. The program, arranged by Dr. Arild E. Hansen, professor of pediatrics, will include as speakers Drs. Alton Goldbloom, McGill University Faculty of Medicine, Montreal; Clifford G. Grulec, Rush professor of pediatrics, University of Illinois College of Medicine, Chicago; Joseph A. Johnston, pediatrician-in-chief, Henry Ford Hospital, Detroit; Rustin McIntosh, professor of pediatrics, Columbia University College of Physicians and Surgeons, New York; and Irvine McQuarrie, professor of pediatrics, University of Minnesota Medical School, Minneapolis. The conferences on pediatrics arranged by the University of Texas Child Health Program are supported by the William Buchanan Foundation of Texarkana.

Personal.—Simon Edward Sulkin, Ph.D., has been promoted to be professor of bacteriology and immunology of Southwestern Medical College and chairman of the department. The news item that appeared in *THE JOURNAL*, September 8, page 142, stating that Dr. Sulkin was acting chairman of the department was received from the Southwestern Medical Foundation. —Dr. Warren Andrew, associate professor of histology and embryology, Southwestern Medical College, Dallas, will carry on research during the next four months at the laboratory for histologic research of the medical school of the National University of Uruguay, Montevideo, it was reported in September. Dr. Andrew's work, which involves a study of microscopic changes in the body with advancing age, will be done in collaboration with Dr. Julio M. Sosa, director of the laboratory, and their findings will be published in both Spanish and English. The project is under the auspices of the Uruguayan government and of the U. S. Department of State.

VIRGINIA

Graduate Course in Ophthalmology.—The nineteenth annual spring graduate course in ophthalmology and otolaryngology will be held at the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, April 1-6, 1946.

Personal.—Dr. Elbyrne G. Gill, Roanoke, was recently appointed chairman of the city board of health and Dr. William R. Whitman vice chairman. —Dr. Ramon D. Garcin Sr. was recently named chairman of the Richmond Public Library Board, succeeding the late Dr. Beverley R. Tucker. —Dr. Charles Preston Pope Jr., Aiken, S. C., has been appointed health officer of the Pulaski-Wythe Health District, effective August 1.

Memorial for Physician.—According to the *Virginia Medical Monthly*, the sum of \$10,000 has been provided in the will of the late Mrs. Sallie B. Twymann as a memorial to her late husband for the establishment in the University of Virginia Department of Medicine, Charlottesville, of the Frederick W. Twymann Fund. The income is to be applied for research in cardiovascular disease under the direction of the department of internal medicine.

Fund for Blind Honors Physician.—Under the will of the late Mrs. Nellie Porterfield Dunn, widow of Dr. John W. Dunn, Richmond, a bequest is provided to benefit blind persons. There is also a stipulation that a residence at 411 East Franklin Street, Richmond, is to become a part of the

"John Dunn Fund for the Blind" and some provisions for grants to blind persons who complete courses at vocational schools in order to allow for the interval between leaving school and finding employment.

WEST VIRGINIA

Personal.—Dr. William J. Habeeb has resigned from the staff of the Pinecrest Sanitarium, Beckley, to become superintendent and medical director of the Clark County Tuberculosis Sanatorium, Springfield, Ohio. —Dr. Benjamin I. Golden, Elkins, was recently appointed chief medical adviser for the West Virginia Department of the American Legion.

District Health Conferences.—"Public Health and the Returning Veteran" and "Sanitation in the Schools" will be the themes of a fall health conference of the Southern District to be held at Beckley October 11. "Public Health and the Rehabilitation Program" and "Interrelation Between the Field Worker and the State Hygienic Laboratory" will be the topics discussed at a similar conference in the Northern District at Wheeling, October 19.

Seminars on Psychiatry.—The psychiatric committee of the West Virginia State Medical Association has completed arrangements for the first of a series of regional seminars on psychiatry to be held in this state under the program adopted by the committee. Night meetings have been scheduled for Morgantown October 10, Huntington October 11 and Bluefield October 12. The meetings sponsored by the committee will be held under the auspices of local medical societies. Guest speakers will be Drs. Wendell S. Muncie, Baltimore, and Dale C. Cameron, Bethesda, Md. Additional seminars are being arranged for other cities in the state later in the year and early in 1946.

PUERTO RICO

Establishment of Health Centers.—An extensive program of public health services is now being considered by the department of health of Puerto Rico to construct two hundred public health centers in the rural areas of the island at a proposed cost of several million dollars. Sites have already been selected, each center to have a full time medical officer and a graduate nurse. A part of the program will be the cooperation of the public health units and the municipal hospitals to carry out a unified plan. The island of Puerto Rico has been divided into four public health districts, with a medical officer in charge of each. Special cancer services will be conducted under the auspices of the Puerto Rico Cancer Institute.

Hospital News.—Dr. Antonio Fernos-Isern, San Juan, commissioner of health of Puerto Rico, has recommended to the legislature and the planning board a plan to provide at least a hospital bed for each thousand inhabitants in each municipality of the island, to be carried out during the next two years. There are said to be forty-three of the seventy-seven municipalities on the island without hospital facilities at the present. There are thirty-four municipalities that have a bed for each thousand inhabitants or more. Cost of repairs, reconstruction or remodeling in the first group is estimated at \$1,075,000, while estimates have not been made for the second group. The report indicates that the legislature has passed bills appropriating \$550,000 to aid municipal hospitals, but the amount is considered insufficient.

GENERAL

Louis Neff Placed in Charge of Cancer Society's Office.—Mr. J. Louis Neff, recently appointed executive director of the American Cancer Society, New York (*THE JOURNAL*, Dec. 25, 1943, p. 1129) has been placed in full charge of the society's headquarters office, subject to the authority of the executive committee of the board of directors of the society. Mr. Neff is taking charge following the resignation of Rear Admiral Charles S. Stephenson (MC), U. S. Navy, retired, as acting managing director (*THE JOURNAL*, June 9, p. 454).

Anniversary of Discovery of X-Rays.—The fiftieth anniversary of the discovery of the x-rays will be nationally observed November 5-10 under the sponsorship of the American College of Radiology. The anniversary celebration will mark the development of x-rays as a medical instrument and call public attention to the uses of radiology in the diagnosis and treatment of disease. It will also seek to educate the public to the services of the radiologist, a physician who specializes in the medical applications of the x-rays, devoting his skill to the interpretation of x-ray films for diagnosis and the application of x-rays in the treatment of many maladies.

Association of American Medical Colleges.—The fifty-sixth annual meeting of the Association of American Medical Colleges will be held at the William Penn Hotel, Pittsburgh, October 29-31, under the presidency of Dr. Albert C. Furstenberg, Ann Arbor, Mich. The University of Pittsburgh School of Medicine will be the host. The speakers will include:

Kenneth W. Vaughn, Carnegie Foundation, New York, The Graduate Record Examination.
Dr. William Worth Hale, Boston, Measurement of Aptitude for Medicine.
Carlyle F. Jacobsen, Ph.D., St. Louis, subject not announced.
Tom Jones, Chicago; Lewis Waters, Ph.D., Dallas; Harry E. Morton, Ph.D., Philadelphia; Joseph E. Markee, Ph.D., Durham, N. C., and Comdr. Dean F. Smiley (MC), Visual Education.
Dr. Edward R. Murgage, Denver, Appointment and Tenure of Faculty of Professional Rank.
William T. Sanger, LL.D., Richmond, Va., What the Educator Thinks the Ideal Medical Curriculum Should Be.
Dr. Tinsley R. Harrison, Dallas, Tradition: The Rivet in the Medical Curriculum.
Harold Cummins, Ph.D., New Orleans, Embryology in the Medical Curriculum.
Dr. Alexander H. Colwell, Pittsburgh, subject not announced.

Civilian Defense Activities Merged with Red Cross.—Under a spirit of cooperation that has existed between the U. S. Office of Civilian Defense and the American National Red Cross since the creation of the former, recommendations have been made to consolidate all emergency medical services with the Red Cross disaster service. Chapter chairmen of the Red Cross have been advised with the approval of Dr. George Baehr, formerly chief medical officer of the U. S. Office of Civilian Defense, to communicate with commanders of civilian defense corps and with the local chiefs of emergency medical service to discuss the consolidation. The U. S. Office of Civilian Defense was closed July 1. The emergency medical service available through the state and local organizations has proved to be an invaluable community asset and should not be allowed to disintegrate, according to Dr. Baehr. The proposed consolidation with the Red Cross disaster service would serve to make it a permanent part of the community resources, a plan which has already been carried out in some communities. On August 7 Dr. Baehr directed a letter to state and local emergency services urging their cooperation with the Red Cross disaster service in the proposed consolidation.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended September 22 have been received from the division of public health methods, U. S. Public Health Service, as follows:

	Poliomyelitis			Poliomyelitis	
	Week Ended Sept. 22, 1945	Week Ended Sept. 23, 1944		Week Ended Sept. 22, 1945	Week Ended Sept. 23, 1944
New England			South Carolina...	6	2
Maine.....	9	6	Georgia.....	6	3
New Hampshire..	1	5	Florida.....	12	1
Vermont.....	5	8	East South Central		
Massachusetts...	51	34	Kentucky.....	3	31
Rhode Island....	1	1	Tennessee.....	21	12
Connecticut.....	11	17	Alabama.....	4	1
Middle Atlantic			Mississippi.....	5	9
New York.....	110	383	West South Central		
New Jersey.....	55	40	Arkansas.....	2	1
Pennsylvania.....	48	82	Louisiana.....	10	5
East North Central			Oklahoma.....	15	2
Ohio.....	37	77	Texas.....	39	5
Indiana.....	11	20	Mountain		
Illinois.....	93	38	Montana.....	7	8
Michigan.....	12	75	Idaho.....	2	0
Wisconsin.....	48	26	Wyoming.....	3	0
West North Central			Colorado.....	11	2
Minnesota.....	23	45	New Mexico.....	1	1
Iowa.....	14	13	Arizona.....	0	9
Missouri.....	9	15	Utah.....	22	0
North Dakota.....	0	3	Nevada.....	0	1
South Dakota.....	1	1	Pacific		
Nebraska.....	14	3	Washington.....	20	5
Kansas.....	8	5	Oregon.....	2	12
South Atlantic			California.....	54	9
Delaware.....	2	8			
Maryland.....	13	31	Total.....	864	1,158
Dist. of Columbia	7	14	First 38 weeks:		
Virginia.....	19	48	1945 and 1944.....	8,890	13,570
West Virginia.....	3	18	Median, 1940-1944.....	5,803	
North Carolina...	14	23			

c. Exclusive of 1 case, Maryland, and 13 cases, Georgia, delayed reports, included in cumulative total only.

Joe Savage Joins National Foundation.—Major Joe W. Savage, for seventeen years executive secretary of the West Virginia State Medical Association, has accepted a position with the National Foundation for Infantile Paralysis, with headquarters in New York. He will work directly under Basil O'Connor, president. Major Savage was released from active duty with the Army Air Forces on September 1 after serving for more than three years with the AAF training command for navigators at various air fields in Texas. At the time of his separation he was director of military training

at San Marcos Army Air Field, San Marcos, Texas. During World War I Major Savage served as an army pilot in France for over two years. Major Savage has had some former experience with the national foundation. During the March of Dimes campaign in 1941 he was granted a leave from the state medical association to assist the national foundation drive. Following four months' service with the foundation he continued to be organizational consultant for several months, visiting local chapters in every part of the United States. Major Savage was at Warm Springs, Ga., several days in September and was to start his new duties in New York the first of October.

LATIN AMERICA

Health Activities in Latin America.—*Visitors to the United States.*—Sylvia Hasselmann, chief of the vital statistics department of the Brazilian Public Health Service, arrived in Miami from Rio de Janeiro July 27 to make a tour of hospitals in the United States. Dr. Herman Bennett of the Chilean Health department arrived July 27 in Miami on his way to Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, to make a study of blood transfusions. Dr. Julio Roberto Herrera, director general of public health of the Republic of Guatemala, has gone to the United States to make a study of public health services. Dr. Herrera studied under a Rockefeller Foundation fellowship at Johns Hopkins University in 1937, receiving the degree of master in public health from the Johns Hopkins University School of Hygiene and Public Health.

Industrial Hygiene Program in Chile.—In preparation for launching a nationwide program in industrial hygiene, the republic of Chile has sent a number of its nationals for training to the United States, according to the *Industrial Hygiene News Letter*. The training is a part of a program for reorganization of the Chilean public health services in cooperation with the Institute of Inter-American Affairs, the Rockefeller Foundation, the Pan American Sanitary Bureau and the Commonwealth Fund. Most recent trainees have been Dr. Alejandro Forero, chief of the Santiago Industrial Hygiene Office of the Chile Public Health Service, who will head the new industrial health service, and Carlos Valenzuela, Ch.Eng., M.Sc. They have just completed their training period. Dr. Forero at Columbia and Mr. Valenzuela at Harvard. Following this training, these men are observing the work of the U. S. Public Health Service Industrial Hygiene Division and various state industrial hygiene laboratories, as well as laboratories of non-official agencies and private industries. On their return to Chile, Dr. Forero and Mr. Valenzuela will organize and teach a course in industrial health in the University of Chile, Santiago. The industrial health course, organized as a part of the public health school of the University of Chile, will offer training to public health personnel, industrial physicians, chemists and engineers, who will then be sent to the United States for further instruction. Authorities in the United States are to be invited to Chile as visiting lecturers and consultants. It is hoped to complete a reorganization of the general program in public health as soon as possible under the direction of Dr. Nacianceno Romero, general director of health. By 1951 it is expected that enough industrial health workers will have been trained to serve the whole nation, with industrial hygiene units established in the main mining and industrial centers and in every important city.

Public Health Libraries.—The National Medical and Public Health Library has been established in the new health center building in Managua, Nicaragua. Books, pamphlets and periodicals of the Direccion General de Sanidad, the Servicio Cooperativo Interamericano de Salud Publica and the Institute of Inter-American Affairs form the nucleus of the library, which is said to be the first of its kind in the republic of Nicaragua. A cooperative arrangement has been made with the American Library of Nicaragua, also located in Managua, where books of that library on medical and allied subjects are listed in the health center library and may be used by staff members and other persons. In Brazil, the library of the Servicio Especial de Saude Publica was established in July 1944 under its health education division. It is a medical library specializing in hygiene, public health and health education.

Hospital News.—Funds with which to construct a tuberculosis hospital in Panama will be derived from a 2.5 per cent increase in the taxes imposed on wagers at horse race tracks, President Enrique Jimenez announced recently. The Republic of Panama is said to have one of the highest tuberculosis rates in the world.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 8, 1945.

The World Control of Narcotic Drugs

A meeting of the Permanent Central Opium Board has been held in London. The president, Sir Atul Chatterjee, described the world drug position. The board wishes to return to the prewar conditions of control. All countries signatory to the conventions (that is, every considerable country excepting Argentina) are required to send in estimates of their needs of narcotic drugs for consumption, manufacture or export for the coming year. These are examined by the Supervisory Commission—an allied organization to the board—and no country is allowed any excess of the figure without submitting a supplementary estimate. At the beginning of the war every government was asked to keep intact national control and to collaborate with the board in international control. But during the war some retrogression has taken place in many countries, especially those with colonies. In normal times the board received some 1,500 returns annually from governments. By 1941 this had fallen to 1,000. The axis or axis occupied countries are the chief defaulters, but Russia ceased sending when it severed connection with the League of Nations. Control is being resumed or continued in Belgium, the Netherlands and Scandinavia. In South America the situation varies. Control is satisfactory in Colombia and, though Argentina has not ratified the convention, that country sends full returns. In Peru, a cocaine exporting country, there has been great improvement, but in Panama and some other places in Central and South America control hardly exists.

Secondary Diphtheritic Infection of Empyema and Thoracotomy Wounds

In *Guy's Hospital Reports* R. C. Brock points out that, while secondary diphtheritic infection of chronic skin lesions is widely known, the fact that it can occur in a wound due to war, accident or operation may be overlooked, with disastrous consequences. Chest wounds are particularly liable to be attacked, presumably by way of the upper respiratory passages but also by direct infection. Brock has several times observed diphtheritic infection of the chest wounds of acute or chronic empyema, lobectomy and pneumonectomy. His first experience was in a young man with chronic empyema who came to the hospital complaining of paralysis of the legs. Examination revealed severe peripheral neuritis of motor type affecting the lower limbs. In the discharge from the wound an organism was found which gave a positive test for diphtheria in a guinea pig. Under rest and antitoxin the paralysis slowly resolved. How dangerous the complication may be is shown by the fact that during the last ten years Brock has seen five outbreaks of diphtheritic infection in wards devoted to thoracic surgical cases. In each outbreak deaths occurred. In three outbreaks a patient was submitted to thoracotomy before the presence of infection in the ward was recognized. In one outbreak several nurses contracted diphtheria, one of whom died. Several patients also developed faucial diphtheria. In only one outbreak was there ground for the suspicion that any nurse or member of the staff might have been the carrier responsible.

Although much has been written on diphtheritic infection of wounds in general, references to thoracic wounds are few and there appears to be none in English literature. But German literature of the last war recognized the condition, and one writer stated that "empyema wounds were particularly liable to infection." Outbreaks were also reported in American military hospitals in the last war. Simmons and Bigelow in 1919

described the rapid spreading of infection to as many as 60 empyema wounds. Response to immediate quarantine and vigorous treatment was poor. It was suggested that the reason why all local methods proved unsatisfactory was that the bacilli grew deep in the granulations. Frequently when superficial cultures were negative the organisms could be readily obtained by curetting.

In Hurst's *Medical Diseases of the War* Harries (1943) gave a valuable account of cutaneous and wound diphtheria: "In the early stage of infection the wound becomes painful and reddened. There is at first an irritating serous discharge, which is replaced in a few hours by a more or less typical pseudomembrane gray or grayish yellow, thin or thick. If the membrane is removed, it reforms. The edges of the wound may either become livid, infiltrated and definitely raised (phlegmonous type) or undermined with fetid pus, in which case they are not invariably reddened (ulcerative type). Vesicles may form on the edges of the wound; these may rupture and then become covered with pseudomembrane." Other writers have described the appearance of the wounds as varying and in no way typical. Brock noticed nothing characteristic; some of the wounds were red and angry, others merely indolent and discharging pus. Tincture of iodine has been recommended as the best application. Once established in a ward, the infection rapidly spreads. The only course is to stop all admissions and send the patients to an isolation hospital. Antitoxin should be given at once and in full doses.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Sept. 15, 1945.

Allergy to *Ascaris Lumbricoides*

Dr. M. Rocha e Silva of the Biological Institute of São Paulo has performed, since March of last year, a series of experiments to ascertain the mechanism of the shock produced in dogs by the extract from *Ascaris lumbricoides*. According to a recently published report the precipitated, dialyzed and deproteinized extracts of *Ascaris* apparently contain a glycogen-like material and a proteose-like substance which, introduced intravenously in doses of 5 to 10 cc., produce in dogs a group of severe symptoms indistinguishable from true anaphylactic shock: enormous engorgement of the liver, increased pressure in the portal vein, abdominal hyperemia and a decided fall of the carotid blood pressure. Since the animals did not receive a preparatory injection of the extract, the shock was attributed to an endogenous, spontaneously acquired sensitization of allergic type, due to the presence of parasites in the intestinal tract. The situation seems to be similar to Van Es and Schalk's finding of an anaphylactic-like shock in horses intravenously injected with extracts from larvae of *Gastrophilus intestinalis*, a parasite common in the digestive tract of those animals. Enormous increases in blood histamine, especially at the trunk of the portal vein, were observed.

Experiments of perfusion of the isolated liver were performed in order to clarify the mechanism of the discharge of histamine and heparin. Perfusing the liver with Tyrode's solution or defibrinated blood plus *Ascaris* extract is not enough to discharge the histamine and the heparin previously bound to liver cells. This led to the idea that total blood contains a factor or factors concerned with the reaction. The suggestion that platelets and leukocytes are those factors was considered very probable on the basis of these three facts: 1. Leukocytes and platelets are enormously reduced in the blood immediately after the injection of the extract. 2. Glycogen extracted from dog's liver produces reductions in the leukocytes and platelets of the same order of magnitude as *Ascaris* extracts but do not induce shock. 3. In experiments of liver perfusion with total citrated or oxalated blood, leukocytes and platelets are retained by the liver cells as soon as

the *Ascaris* extract is injected, and at the same time a small discharge of histamine and heparin is observed in most cases. Further experiments have shown that platelets can be found forming enormous aggregates in Giemsa stained smears prepared from pieces of liver taken immediately after the injection of the *Ascaris* extracts, and there was clear indication that those aggregates are disintegrated during the onset of the reaction. The author suggests the hypothesis that products derived from disintegrated platelets (trypsin kinase) might activate the plasma trypsin, and this would be the final mediator for the histamine and heparin discharge from liver cells.

Personal

Dr. Raul David de Sanson has been appointed professor of otorhinolaryngology at the University of Rio de Janeiro. He is one of the leading practitioners of this specialty in the city and was already serving at the university as professor ad interim.

Dr. Fabio C. de Mendonça, director of the Bureau of Sanitary Defense of Harbors and Airports of the National Department of Health, has just left for the United States to meet the director of the health division of the UNRRA for the discussion of some problems in that special field of work.

Dr. J. Bonifacio Medina has been appointed professor of clinical gynecology at the University of São Paulo.

Dr. Godinho dos Santos, surgeon general of the Brazilian air force, and Lieut. José Inis Guimarães of the same service have left for the United States, at the invitation of the American government, to visit military hospitals and other establishments connected with the problems of the health of American soldiers.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 9, 1945.

Exploitation of Drugs

The Committee for Promoting the Exploitation of Drugs recently requested the collaboration of the authorities of the Institute of Pharmacology and Therapeutics of the Faculty of Medicine of the University of Buenos Aires. The object is to prepare and sell various medical preparations such as atropine, morphine and digitalis, which up to now have been imported. The committee also carries on investigations aimed at intensifying the production of industrial essential substances such as peppermint and lavender and insecticides for use in the country and for export.

Diagnosis of Tuberculosis

The Argentine League Against Tuberculosis recently published the results obtained by x-ray examination of the thorax at the Abreu center. The rate of tuberculosis as it was found in a series of 166,600 persons who had examinations during the years 1940 to 1943 was surprising. A percentage of 7.42 tuberculous patients believed themselves normal and lived with the rest of the family without observing any precautions. A percentage of 2.71 tuberculous patients who believed themselves normal lived without any family. Early tuberculosis among 4,000 persons was found by means of the x-ray examination of the thorax. Early treatment was administered.

Rationing Quinine

The National Department of Public Health recently passed regulations through which buying, prescribing and selling quinine are justified only when the drug is to be used in the control of malaria. Drugstores in malarial zones of the country are allowed to have 10 Gm. of quinine, to be used in serving prescriptions for patients with malaria. The amount of the drug is replaced, with proper authorization, as soon as the owners give an account to the proper authorities of having used the drug in filling prescriptions for patients with malaria.

Congresses

The second South American Congress of Otorhinolaryngology was recently held in the University of Montevideo, Uruguay. Dr. J. M. Alonso was the president. Well known specialists of Argentina, Brazil, Peru, Paraguay, Bolivia, Mexico, Chile, Ecuador and Venezuela attended.

The seventeenth Argentine Congress of Surgery will be held in 1946. The official topics will be the diagnosis and treatment of intussusception in children, the therapy of pseudoarthrosis and the diagnosis and results of operation in cancer of the lung.

The first Argentine Congress of Neurosurgery was organized by the Argentine Medical Association. Dr. Roque Orlando of Buenos Aires is the president of the association. The congress was held at Buenos Aires on Nov. 12 to 18, 1944. There were delegations and official speakers from Chile, Brazil, Bolivia, Paraguay and Uruguay. Official speakers were Drs. Vivado Orsini of Santiago, Chile, Adherbal Tolosa and Paulino Longo of São Paulo, Brazil, and Ramón Melgar, Ramón Carrillo and Enrique Pichón Riviere, all of Buenos Aires. Official topics were clinical symptoms for the prognosis of schizophrenic psychoses, the therapy of algias in neurology and lobotomy in psychiatry.

The seventh National Congress of Medicine of Argentina, which was postponed in 1943, will be held in Buenos Aires April 7 to 14, 1946.

The first gastroenterologic meeting of the Society of Gastroenterology and Nutrition will be held on Rio de la Plata on October 8 and 9. Dr. Oscar Copello will be the president. Official speakers are Dr. Carlos Bonorino Udaondo of Buenos Aires, "Infiltrative Sigmoiditis"; Dr. Mariano R. Castex of Buenos Aires, "Diverticular Sigmoiditis"; Dr. Julio Diez of Buenos Aires, "Surgical Therapy of Noncancerous Diseases of Sigmoid," and Dr. Julio Carrere of Uruguay, "Perisigmoiditis and Complications."

Deaths

Dr. Rafael A. Bullrich of Buenos Aires, who specialized in cardiology, died Oct. 28, 1944 at the age of 67.

Dr. Mariano Alurralde of Buenos Aires, a neurologist and professor of clinical neurology at the Faculty of Medicine of Buenos Aires, recently died.

Prizes

The Bullrich prize for the best article on cardiology during a period of two years was recently established in homage to the late Dr. Rafael A. Bullrich.

Marriages

SAMUEL CLARK ATKINSON, DREW, Miss., to Miss Marjorie Sturtevant Webb in North Plainfield, N. J., August 26.

RICHARD FREDERICK AULICK, St. Louis, to Miss Lillian Pauline Haugen of Madison, Wis., July 7.

GEORGE C. GRAHAM, Bellerose, N. Y., to Dr. MURIEL E. HUENI of Queens Village, June 23.

CARL K. PEARLMAN, Brooklyn, to Miss Agnes E. Branch of Huntington, W. Va., recently.

GEORGE M. KOZURKA, Wilmington, N. C., to Miss Bernice Carey in New Orleans, April 6.

JAMES BATES KITTRILL to Miss Ruth Estelle Hendrick, both of Texarkana, Ark., July 27.

EDWIN CLARENCE MORGAN to Miss Marjorie Larman, both of Russellville, Ky., April 18.

FRANK J. KELLY, Kansas City, Mo., to Miss Dorothy Rita Paige of St. Louis, June 16.

GEORGE PIVTON KILEY to Miss Bessie Browder, both of Shreveport, La., July 14.

LORRAIN ANNA LANLUVILLE, Scranton, Pa., to Mr. C. A. Jones, June 30.

Deaths

Joseph Chauncey Gerard Regan @ Brooklyn; University and Bellevue Hospital Medical College, New York, 1913; born in New York, Sept. 18, 1891; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics, Brooklyn Academy of Pediatrics, Brooklyn Clinical Society, Brooklyn Medical Library Association and the Catholic Physicians Guild; formerly on the faculty of the Long Island College Hospital; chairman of the milk commission of the Kings County Medical Society; served on the staffs of the nursery school, St. Joseph's College for Women, the Victory Memorial Hospital, St. Charles Hospital Orthopedic Clinic and St. Catherine's Hospital, all in Brooklyn, the Holy Name Hospital in Teaneck, N. J., and St. Charles Hospital for Crippled Children in Port Jefferson; formerly associated with the Kingston Avenue Hospital; died in Garden City, N. Y., August 15, aged 53.

Henry Roosevelt Craig, Eloise, Mich.; University of Georgia Medical Department, Augusta, 1928; member of the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology; senior psychiatrist at the Eloise Hospital; interned at the Watts Hospital in Durham, N. C.; resident in medicine at the Church Home and Infirmary in Baltimore; formerly assistant in gastroenterology and cardiology at the Henry Ford Hospital in Detroit, graduate assistant in cardiology at the Massachusetts General Hospital in Boston, member of the neurologic service, Boston City Hospital, and physician at the Norfolk Prison Colony in Norfolk, Mass., and the Worcester State Hospital in Worcester, Mass.; died in Ann Arbor, Mich., June 23, aged 41, of acute myoblastic leukemia.

Homer Henderson Wheeler @ Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1897; served as assistant professor of surgery (proctology) at the Indiana University School of Medicine; member of the American Proctologic Society and the National Gastroenterological Association; fellow of the American College of Surgeons; served during World War I; on the staffs of the Indianapolis City, St. Vincent's and Methodist hospitals; died in the Temple University Hospital, Philadelphia, July 3, aged 72, of cardiovascular collapse.

Osbourn Orlando Ashworth @ Richmond, Va.; Medical College of Virginia, Richmond, 1921; also a graduate in pharmacy; member of the American College of Chest Physicians, Richmond Academy of Medicine, Southern Medical Association, American Heart Association, American Rheumatic Association, Tri-State Medical Society, the Virginia Academy of Science and the American Trudeau Society; interned at St. Elizabeth's Hospital; on the staff of the Stuart Circle Hospital; died in Gloucester County July 5, aged 49, of heart disease.

Henry M. Beckwith @ Joliet, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1897; died in Poplar Bluff, Mo., June 27, aged 78, of injuries received when struck by an automobile.

George Delos Beech @ Rio Hondo, Texas; Rush Medical College, Chicago, 1891; mayor of Rio Hondo; on the staff of the Valley Baptist Hospital, Harlingen; died July 5, aged 77, of heart disease.

John L. Benage, Lebanon, Mo.; St. Louis College of Physicians and Surgeons, 1901; member of the American Medical Association; since 1920 health officer; on the staff of the Wallace Hospital; died June 27, aged 70, of cerebral hemorrhage.

Bolling Sasnett Branham, Powder Springs, Ga.; Atlanta College of Physicians and Surgeons, 1908; member of the American Medical Association and the Medical Association of the State of Alabama; served with the Fairfield Dispensary of the Tennessee Coal, Iron and Railroad Company in Fairfield, Ala.; died July 1, aged 64, of bronchopneumonia.

James Fleming Breakey, Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; retired member of the Michigan State Medical Society; member of the American Medical Association; formerly on the faculty of his alma mater; served overseas with Base Hospital number 17 during World War I; on the staff of St. Joseph's Mercy Hospital; died in the University Hospital June 26, aged 75, of carcinoma of the cecum.

John E. Campbell, Brown City, Mich.; Detroit College of Medicine, 1892; served as mayor of Brown City and as a member of the board of education; died June 28, aged 76, of cerebral hemorrhage.

John Canuel, Fall River, Mass.; College of Physicians and Surgeons, Boston, 1935; interned at St. James Hospital in Newark, N. J.; on the staff of St. Anne's Hospital; physician for the state boxing commission; died June 27, aged 41, of acute dilatation of the heart.

John Henry Cleary @ Kenosha, Wis.; College of Physicians and Surgeons, School of Medicine of the University of Illinois, 1902; past president and secretary of the Kenosha County Medical Society; served on medical examining boards during World Wars I and II, receiving commendation from the government for his patriotic and untiring service along these lines; on the staffs of the St. Catherine's Hospital and the Kenosha Hospital, where he died July 20, aged 71, of aplastic anemia.

Edith May Cole, Louisville, Ky.; University of Louisville School of Medicine, 1937; resident physician at St. Mary's Hospital in Athens, Ga.; interned at the Wesley Hospital in Wichita, Kan., and St. Anthony's Hospital; formerly resident physician at the Woman's Hospital in Philadelphia; died in the Jewish Hospital June 14, aged 61, of carcinoma of the uterus.

Thomas Edward Cole, LeMars, Iowa; College of Physicians and Surgeons, Chicago, 1890; died June 7, aged 84, of cancer of the kidneys.

Henry John Collins @ Trenton, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1917; served during World War I; on the staff of the F. W. Donnelly Memorial Hospitals and St. Francis Hospital, where he died June 21, aged 55, of chronic myocarditis and auricular fibrillation.

Byron Bartlett Colvin @ Cleveland; University of Wooster Medical Department, Cleveland, 1908; served overseas during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; on the courtesy staffs of the Huron Road, Charity, St. Alexis and St. Luke's hospitals; served as chief of staff of Woman's Hospital where he died June 20, aged 63, of heart disease.

William Homer Conklin, New York; College of Physicians and Surgeons, Baltimore, 1906; served during World War I; died May 10, aged 61, of cerebral arteriosclerosis with psychosis.

Joseph Bruce Crook @ East Haddam, Conn.; New York Homeopathic Medical College and Flower Hospital, New York, 1913; served as health officer; for many years coroner's medical examiner; a first lieutenant in the medical corps of the U. S. Army during World War I; died in the Middlesex Hospital, Middletown, June 29, aged 59, of abdominal lymphosarcoma.

David Aloysius Flynn, New Haven, Conn.; Yale University School of Medicine, New Haven, 1905; medical supervisor of the Springside Home; died in the Hospital of St. Raphael June 25, aged 65, of bronchopneumonia and heart disease.

Michael Archangel Galgano @ Chicago; University of Illinois College of Medicine, Chicago, 1914; member of the American Urological Association; died July 14, aged 54, of myocarditis.

Eric Julian Gambee, Earlring, Iowa; John A. Creighton Medical College, Omaha, 1917; member of the American Medical Association; served during World War I; died in St. Joseph's Hospital, Omaha, July 5, aged 54, of injuries received in an automobile accident.

George Glucksman, Long Beach, N. Y.; Long Island College Hospital, Brooklyn, 1904; died June 2, aged 63, of pulmonary hemorrhage.

Murray William Goldsmith, New York; Universität Bern Medizinische Fakultät, Switzerland, 1936; died in the Kings Park (N. Y.) State Hospital May 15, aged 35, of pulmonary tuberculosis.

John Joseph Halnan, Paterson, N. J.; University College of Medicine, Richmond, 1907; served in France during World War I; died June 28, aged 65, of chronic hepatitis and myocardial failure.

Clare Heilner Hanley, Scranton, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1905; member of the American Medical Association; served in France during World War I; died June 30, aged 63, of cerebral hemorrhage.

Edward Albert Hanske * Bellevue, Iowa; Louisville (Ky.) Medical College, 1901; died June 21, aged 72, of coronary thrombosis.

Paul Robert Lavin, East Islip, N. Y.; Temple University School of Medicine, Philadelphia, 1932; interned at St. Vincent's Hospital in New York; served a residency at the Central Islip State Hospital in Central Islip, N. Y.; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 26, 1941; service terminated in September 1942; on the staff of the Southside Hospital, Bay Shore; died in West Islip July 6, aged 39, of injuries received in an automobile accident.

Carl Clayton Mann, Rumson, N. J.; University of Buffalo School of Medicine, 1895; died June 1, aged 75.

John Edwin Manney, San Antonio, Texas; Dallas Medical College, 1904; member of the American Medical Association; served during World War I; died in the Medical and Surgical Memorial Hospital May 27, aged 72, of acute ileus, atrophy of the liver and adhesions of the cecum.

George M. Monk, Newton Grove, N. C.; University of North Carolina School of Medicine, 1908; died in the State Hospital, Raleigh, June 27, aged 76, of heart disease.

Edward Lloyd Morrison * Washington, D. C.; Jefferson Medical College of Philadelphia, 1905; specialist certified by the American Board of Ophthalmology; on the staff of the Episcopal Eye, Nose and Throat Hospital; chief of eye service at the Doctors Hospital, where he died August 14, aged 66, of coronary thrombosis.

Guy Ramsey * Sioux Falls, S. D.; Drake University Medical Department, Des Moines, 1901; formerly contract surgeon in the U. S. Army; company physician for John Morrell & Company for two years; died August 19, aged 75, following an operation for carcinoma of the stomach.

Benjamin Lewis Rawlins, Hinsdale, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1889; formerly health officer of Hinsdale; for many years associated with the Equitable Life Assurance Company; died July 11, aged 77, of intracranial hemorrhage.

John Herbert Reading Jr., Merion Station, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1917; associate in pediatrics at his alma mater; on the staff of the Hahnemann Hospital; served during World War I; died July 3, aged 55, of cerebral hemorrhage.

Buford Allen Russell, Sherman, Texas; Birmingham (Ala.) Medical College, 1912; member of the American Medical Association; served as health officer of Grayson County; died in the Wilson N. Jones Hospital June 15, aged 57, of carcinoma of the liver.

Henry Alexander Shaw * Pittsburgh; University of Pittsburgh School of Medicine, 1911; died May 14, aged 63, of coronary occlusion and hyperthyroidism.

William Henley Smith * Trenton, N. J.; Jefferson Medical College of Philadelphia, 1917; on the staff of the Mercer Hospital; died June 1, aged 51, of coronary thrombosis.

Robert Hill Tedford * Albany, N. Y.; Albany Medical College, 1893; an Affiliate Fellow of the American Medical Association; died June 26, aged 81, of carcinoma of the colon.

Gilbert Jefferson Thomson, Terre Haute, Ind.; Medical College of Indiana, Indianapolis, 1905; died June 16, aged 70, of myocarditis.

Corlis H. Wallin, Brooksville, Ky.; University of Louisville Medical Department, 1894; member of the American Medical Association; served as health officer of Bracken County; died June 15, aged 72.

Alexander W. Widner * Newtown, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; Missouri Medical College, St. Louis, 1892; died August 21, aged 76, of pneumonia and coronary thrombosis.

Robert Edward Wilson * St. Louis; Washington University School of Medicine, St. Louis, 1896; for many years medical adviser for the Southwestern Bell Telephone Company; died in the Barnes Hospital July 14, aged 74, of sarcoma of the bladder.

William Johnston Yongue * Lafayette, La.; University of Louisville Medical Department, 1913; died June 6, aged 56, of coronary thrombosis.

John Behan York, Houston, Texas; Medical College of Ohio, Cincinnati, 1896; member of the American Medical Association and the Southern Psychiatric Association; for many years psychiatrist for Harris County; died June 15, aged 73, of uremia.

DIED WHILE IN MILITARY SERVICE

Earl Melvin Anderson, Minneapolis; University of Minnesota Medical School, Minneapolis, 1941; interned at the Minneapolis General Hospital; served a fellowship in surgery at the Mayo Foundation in Rochester, Minn.; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on March 3, 1942; promoted to lieutenant; navy flight surgeon; died at the Naval Air Station in Glenview, Ill., July 5, aged 28, of extreme multiple injuries received in an airplane crash.

George Sanford Foster * Manchester, N. H.; Tufts College Medical School, Boston, 1906; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve on Oct. 5, 1942; died in the U. S. Naval Dispensary in Washington, D. C., July 10, aged 63, of arteriosclerotic coronary heart disease.

Joseph Edward Hoenninger, Lancaster, Pa.; Temple University School of Medicine, Philadelphia, 1942; interned at St. Joseph's Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 16, 1943; died in Camp Carson, Colo., Oct. 30, 1943, aged 28.

Henry Wilds Patton * Captain (MC), U. S. Navy, Aiea Heights, Hawaii; University of Virginia Department of Medicine, Charlottesville, 1925; diplomate of the National Board of Medical Examiners; interned at the U. S. Naval Hospital in Norfolk, Va.; commissioned an assistant surgeon, lieutenant (jg), in the medical corps of the U. S. Navy on June 4, 1925; rose through the various ranks to that of captain on April 1, 1943; served on the staffs of the naval hospitals at Great Lakes, Ill., San Diego, Calif., and Pensacola, Fla., and as medical officer aboard the carrier *Lexington*, the battleship *New York* and the cruiser *Boise*; while senior medical officer of the transport *Crescent City* he participated in many of the early battles of the Pacific war; served as officer in charge of the hospital corps school in San Diego; at one time executive officer at the U. S. Naval Hospital in Pearl Harbor; executive officer of the U. S. Naval Hospital in Aiea Heights, where he died suddenly June 10, aged 46, of coronary heart disease.

Amos Alexander Plante * Maplewood, N. J.; Columbia University College of Physicians and Surgeons, New York, 1927; interned at the Orange Memorial Hospital in Orange; began active duty as a captain in the medical corps, Army of the United States, on Nov. 12, 1943; assigned to the 216th General Hospital; died in France May 23, aged 45, in an airplane crash.

Kenneth Marshall Sears, Elburn, Ill.; Rush Medical College, Chicago, 1931; member of the American Medical Association; interned at the Wesley Memorial Hospital in Chicago; began active duty as a first lieutenant in the medical corps, Army of the United States, on Jan. 15, 1942; later promoted to captain and major; went overseas in September 1944 and in charge of a hospital train evacuating wounded from the front lines in Paris; died in the Copley Hospital, Aurora, June 2, aged 41, of multiple myeloma, plasma cell type.

Bruce Taylor Smith * Fort Covington, N. Y.; McGill University Faculty of Medicine, Montreal, Que., 1925; interned at the Royal Victoria Hospital in Montreal; began active duty as a captain in the medical corps, Army of the United States, on Aug. 31, 1942; promoted to major; died in the European area Sept. 19, 1944, aged 42, in an airplane accident.

Joseph John Stasko, Chicago; Northwestern University Medical School, Chicago, 1944; interned at the Cook County Hospital; commissioned a lieutenant (jg), medical corps, U. S. Naval Reserve, on Dec. 18, 1943; began active duty Oct. 9, 1944; served overseas for about seven months; died in the Asiatic area June 17 while on the hospital ship U. S. S. *Refuge*, aged 33, of aplastic pernicious anemia.

Talcott Wainwright, Scranton, Pa.; Columbia University College of Physicians and Surgeons, New York, 1933; member of the American Medical Association; interned at the Moses Taylor Hospital and a residency at the Nanticoke (Pa.) State Hospital; began active duty as a captain in the medical corps, Army of the United States, on Sept. 1, 1941; promoted to major; died in the Philippine Islands April 19, aged 41, of coronary thrombosis.

Correspondence

CUTANEOUS HELMINTHIASIS

To the Editor:—In THE JOURNAL, August 11, Wright and Gold referred to *Ancylostoma braziliense* as "a hitherto unreported etiologic factor in the production of Loeffler's syndrome." No descriptions are made of the nematodes involved in their series of cases, but no mention is made of their having ruled out *Necator americanus* and/or *Ancylostoma duodenale* as the etiologic agent. Nor was mention made of the details of the stool examinations performed.

According to Belding (Textbook of Clinical Parasitology, New York, D. Appleton-Century Company, 1942, p. 292) "ground itch or hookworm dermatitis caused by the [hookworm] larvae in the skin is most prevalent . . . in the spring and summer months in the Southern United States." It is also well known that the latter nematodes pass through the pulmonary alveoli in the course of their intrahuman development and migration. Hence it appears that it has not been proved that the cases reported by Wright and Gold were not merely cases of hookworm.

NATHANIEL S. LEHRMAN, Albany, N. Y.

[NOTE.—The letter of Mr. Lehrman (a fourth year medical student at the Albany Medical College) was sent to Dr. Wright, who replies:]

To the Editor:—The elimination of the possibility of concomitant infection with *Necator americanus* must be based on two factors: (a) the clinical appearance of the skin lesions and (b) the absence of ova or parasites in the stool six weeks or more after the cutaneous invasion.

Further perusal of Belding's textbook (pages 492-496) clearly differentiates the papulovesicular eruption caused by *Necator americanus* and less frequently by *Ancylostoma duodenale* from the classic serpigenous burrows of creeping eruption of *Ancylostoma braziliense*. The mild, transient vesicular lesions produced by *Ancylostoma caninum* are similarly differentiated.

If concomitant infection with human hookworm had been present the ova and/or parasites would have appeared in the stool beginning six weeks after the cutaneous invasion. In our original paper (Wright, D. O., and Gold, Edwin M.: Loeffler's Syndrome Associated with Creeping Eruption [Cutaneous Helminthiasis], THE JOURNAL, August 11, p. 1082) we stated that "examination of 81 stool specimens from the 26 patients encompassing periods of observation of ten days to three months failed to reveal presence of ova or parasites in any specimen." In a paper in preparation at the present time we state that "a total of 441 stool examinations have been done on 76 patients with creeping eruption. Nematodal ova or parasites were not found except in 1 case that harbored *N. americanus* ova but this case did not develop pulmonary infiltration. Two hundred and four of these examinations were performed on 26 patients with Loeffler's pneumonia. Thirteen of these cases with pulmonary lesions had a total of 172 stool examinations over a period of more than six weeks."

Faust's zinc sulfate flotation technic was used in all stool examinations.

D. O. WRIGHT, Lieutenant Colonel, M. C., A. U. S.
Chief, Medical Service.

Bureau of Legal Medicine
and Legislation

MEDICOLEGAL ABSTRACTS

Medical Societies: Right of State Association to Order County Societies to Admit Applicants to Membership.—The Medical Association of the State of Alabama was incorporated by a legislative act in 1850, which has been amended and codified from time to time. Among other things the special act, as amended and codified, constitutes the association the board of health of the state, and the county medical societies, in affiliation with the state association and organized in accordance with the provisions of its constitution, are constituted boards of health for their respective counties under the general direction of the state board of health. Related legislation vests in these boards of health the sole and exclusive control of the public health and interdicts the setting up of any rival boards of health or executive bodies for the exercise of public health functions. By other legislation the board of censors of the state association is constituted the state board of medical examiners. By the constitution of the state association all members of county medical societies holding charters from the association are *ipso facto* members of the association. Article XV, section 2, of that constitution provides that graduates of reputable medical colleges "shall under such terms as may be prescribed by the association be eligible for membership in county medical societies." By section 3, *ibid.*, county societies, subject to the approval of the association, are authorized to adopt rules and regulations for their government. Section 4, *ibid.*, authorizes county societies "under the general control and supervision of the association" to exercise such jurisdiction over their members as is authorized by their respective constitutions. Section 14, *ibid.*, provides that county societies in affiliation with the association shall abide by all decisions of the association. Finally, for purposes germane to this abstract, article XX, section 3, provides that "the association shall have the right to confirm or amend in such way as it deems proper any verdict rendered, or conclusion reached, by a county society, the decision of the association being final."

After the inception of World War II several members of the Medical Society of Mobile County, a chartered county society of the state association, agreed among themselves to reject all applicants for membership, regardless of eligibility, pending the duration of the war. Drs. Webb and Greene, who in the words of the opinion in the present case "were worthy and reputable practicing physicians of Mobile County and possessed of all the qualifications for membership in the society . . . and . . . conceded to be eminently eligible for membership," applied for membership in the Mobile society and were rejected by reason of the agreement referred to. Just what transpired procedurally thereafter is not made clear in the reported case, but eventually the state association, on notice to all parties concerned, reviewed the action of the Mobile society in rejecting their applications for membership and determined as to each applicant "that there had been no charges filed or evidence presented against (them) and no constitutional, professional, ethical, or moral reasons offered to sustain" the act of the Mobile society in refusing to admit them to membership. The state association, after recommendation of its board of censors, by unanimous vote ordered and directed the county society to enroll Drs. Webb and Greene as members of the Mobile society. Thereafter Walker, a member in good standing of the Mobile society, instituted action against the Mobile society and its secretary to restrain the society from enrolling Drs. Webb and Greene as members of the society. The trial court dismissed the action, and Walker appealed eventually to the Supreme Court of Alabama.

Walker contended that the Mobile society was invested with the sole, exclusive, autocratic and irremediable right and authority to exclude from membership any physician, whether eligible or not, whatever the basis of such denial of membership, and the state association was without authority or jurisdiction to control the county society's action in this respect.

The Medical Society of Mobile County, answered the court, holding its charter from the Medical Association of the State of Alabama and acting in affiliation with it, is subordinate and subject to the supervisory powers of the association. The Mobile society and Walker as a member thereof were thereby subject and amenable to the provisions of the constitution and by-laws of the state association. A reasonable construction of the constitution of the state association, when considered in the light of the purposes the whole structure was designed to effect, makes it clear that the state association duly acted within the scope of its supervisory jurisdiction over the county medical society in ordering the enrolment as members of the two eligible physicians excluded. By the integrated structure of the two organizations the county society was "under the general control and supervision of the association" in regard to such matters (Constitution of State Association, article XV, section 4) and must "abide-by all decisions (constitutional) of the association . . . settled by the association" (*ibid.*, article XV, section 14) which decisions shall be final (*ibid.*, article XX, section 3). To permit the perpetuation of the agreement among some of the members of the Mobile society not to admit to membership any applicants during the pendency of the war could finally paralyze the effectiveness of the local society and if transacted long enough might result in the restriction of membership in the local society to those members party to the agreement and would thereby repose in them unintended and autocratic authority. Undoubtedly the constitutions of the state association and the county society, fairly interpreted, intend no such objectives, nor that the state association should be powerless to redress such action. However worthy the motives of the county society members in voting in accordance with their agreement, it was within the competence of the state association on a question of such fundamental policy, in the words of article XX, section 3, of the state association's constitution, to "amend . . . the conclusion reached by the county society, the decision of the association being final."

It is important to note, continued the court, that, by the law constituting the state association as the state board of health, it has become the residuum of official power and is impressed with attributes and functions of a highly public nature. To it have been delegated specific governmental prerogatives and duties by the state, repositing with it of exclusive franchises and powers of an eminent degree and of the highest concern to the public welfare. A similar status prevails as to the county medical society which is the county board of health. The state association and the county societies in affiliation with it have accepted these delegated responsibilities and it is plain that the parent organization, entrusted with such grave public duties, should not be powerless to direct and control action of a subordinate county society in matters of the character now under consideration, which must undoubtedly have a direct effect on the public welfare. There appears to be a certain opprobrium on any physician who is not a member of his county society and of the state association. Among other things, he cannot in this state become a health officer, since the selection of such an officer must be made from the membership of the society. The reasonable effect of thus excluding all eligible, incoming physicians from society membership would be to make them outcasts of the organization, to become members of which all eligible and worthy physicians naturally aspire. It would be sophistical to contend that this result would not strongly tend to discourage the best and most skillful members of the medical profession from locating in Mobile County and that this would not have a direct and deleterious effect on the public health of the county where there is necessarily a need for such physicians, owing to the exceptionally patriotic conduct of a large number of the local practitioners who entered the armed services, thereby resulting in a shortage of civilian physicians. It is manifest that the constitution of the state association, integrated as it is with the public health laws of the state, did not, nor does it, intend that the association should be impotent to correct such action in the discharge of its accepted duties and responsibilities of guarding the public health. On the contrary, it is clear that the constitution of the state association vests in the parent body superior authority and exclusive jurisdiction in matters such as here considered and to fail to give effect to the various provisions indicative thereof, so often repeated

throughout the body of the constitution, would be to ascribe to them no more than a meaningless tautology, evidently not intended. The construction placed on these constitutional provisions is entirely reasonable and consistent with the integrated structure of the medical bodies involved, and the rule seems to be established that the courts will not review the correctness of the interpretation placed on the constitution and by-laws of a voluntary association by its duly authorized tribunal in matters merely procedural or jurisdictional, if such interpretation is fair and reasonable. *Harris v. Missouri Pac. Ry. Co.*, D. C., 1 F. Supp. 946; *Pratt v. Amalgamated Ass'n*, etc., 50 Utah 472, 167 P. 830; *Long v. B. & O. Ry. Co.*, 155 Md. 265, 141 A. 504; *Simpson v. Grand Internat. B. of L. Engineers*, 83 W. Va. 355, 98 S. E. 580.

The court accordingly upheld the right of the state association to order the Mobile society to enroll Drs. Webb and Greene as members of the society and therefore affirmed the action of the trial court in dismissing Walker's bill to restrain that enrolment.—*Walker v. Medical Society of Mobile County*, 22 So. (2d) 715 (Ala., 1945).

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in *THE JOURNAL*, Sept. 29, page 378.

BOARDS OF MEDICAL EXAMINERS

- ALABAMA: Mar. 19-21. Sec. Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.
ARKANSAS: * *Eclectic*. Little Rock, Nov. 8. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.
CALIFORNIA: Oral. San Francisco, Nov. 11. *H'titten*. Sacramento, Oct. 15-18. Sec., Dr. Frederick N. Scatenen, 1020 N St., Sacramento 14.
CONNECTICUT: * *Medical Examination*. Hartford, Nov. 13-14. Nov. 27. Sec. to the Board, Dr. Creighton New Haven. *Homoeopathic*. Derby, Nov. 13-14. 1488 Chapel St., New Haven.
FLORIDA: * Jacksonville, Nov. 26-27. Sec., Dr. Harold D. VanSchaick, 2736 S. W. Seventh Ave., Miami 36.
IDAHO: Boise, Jan. 15. Dir., Bureau of Occupational Licenses, Miss Agnes Barnhart, 355 State Capitol Bldg., Boise.
ILLINOIS: Chicago, Oct. 9-11. Supt. of Registration, Department of Registration & Education, Mr. Philip Harman, Springfield.
KANSAS: Topeka, Dec. 6. Sec., Board of Medical Registration and Examination, Dr. J. F. Fressig, 905 N. Seventh St., Kansas City 10.
MAINE: Portland, Nov. 13-14. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.
MARYLAND: *Medical*. Baltimore, Dec. 11-15. Sec., Dr. J. T. O'Mara, 1215 Cathedral St., Baltimore. *Homoeopathic*. Baltimore, Dec. 11-12. Sec., Dr. J. A. Evans, 612 W. 40th St., Baltimore.
MASSACHUSETTS: Boston, Nov. 20-23. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.
NEW JERSEY: Trenton, Oct. 16-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.
NEW MEXICO: * Santa Fe, Oct. 8-9. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.
NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.
OHIO: *Endorsement*. Columbus, October. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.
OKLAHOMA: * Oklahoma City, March 23. Sec., Dr. J. D. Osborn Jr., Frederick.
OREGON: * *Reciprocity*. Portland, Oct. 19. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland 4.
SOUTH CAROLINA: Columbia, Nov. 13. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.
SOUTH DAKOTA: * Pierre, Jan. 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.
VERMONT: Burlington, March or April 1946. Sec., Dr. F. J. Lawliss, Richford.
WISCONSIN: * Madison, Jan. 8-10. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

- CONNECTICUT: Oct. 13. Address State Board of Healing Arts, 250 Church St., New Haven 10.
DISTRICT OF COLUMBIA: Washington, Oct. 22-23. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.
FLORIDA: DeLand, Nov. 3. Sec., Dr. J. F. Conn, Box 655, DeLand.
IOWA: Des Moines Oct. 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.
MICHIGAN: Ann Arbor and Detroit, Oct. 12-13. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.
RHODE ISLAND: Providence, Nov. 14. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.
SOUTH DAKOTA: December. Sec., Dr. J. D. Alway, Aberdeen.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Cincinnati

28:701-821 (July) 1945

- Evaluation of Visual Acuity Symbols. W. H. Fink.—p. 701.
Influence of Selected Spectral Distribution on Glare Effect, Studied by Means of Dark Adaptation. E. Simonson, S. Blankstein and E. J. Carey.—p. 712.
Binocular and Red-Free Ophthalmology. R. I. Lloyd.—p. 725.
Cause and Treatment of Poor Vision in Aniridia. L. G. Algers.—p. 730.
Aniseikonia and Spatial Orientation. H. M. Burian and K. N. Ogle.—p. 735.
Glaucoma and Essential Progressive Atrophy of Iris. H. S. Sugar.—p. 744.
Observations on Retinal Blood Flow with Aid of Kukán's Ophthalmodynamometer. M. W. Morgan Jr., J. B. Mohny and J. M. D. Olmsted.—p. 749.
Recurrent Juvenile Papilloma of Conjunctiva: Case Report. J. D. Walker.—p. 751.

American Journal of Orthopsychiatry, New York

15:381-570 (July) 1945

- Germany After War. Round Table.—1945.—p. 381.
Children Under Nazi System: Some Facts for Social Diagnosis. R. M. Wittenberg.—p. 442.
Needs and Problems of Military Women in Readjusting to Civilian Life. P. Solomon and M. C. Winfield.—p. 454.
Development of Psychiatric Service in General Hospital and Its Relation to Veteran. J. M. Cunningham.—p. 463.
Group Psychotherapy for Combat Neuroses. S. Paster.—p. 472.
Therapy Through Group of Neurotic Soldiers in Experimental Military Setting. M. R. Friend and S. Olinick.—p. 483.
Value of Civilian Psychiatric Consultation for Army University Cadets. S. H. Kaufman and R. A. Clark.—p. 489.
Conscience in the Psychopath. P. Greenacre.—p. 495.
Developmental Diagnosis and Supervision: Some Postwar Possibilities. A. Gesell.—p. 510.
Rorschach Test Findings in Group of Conscientious Objectors. A. I. Rabin.—p. 514.
Rorschach Experiment: Progress and Problems. S. J. Beck.—p. 520.
Organization Activity in Rorschach Examination. W. Goldfarb.—p. 525.
Readjustment of Child in Postwar Era. Z. S. Wolpe.—p. 529.

Connecticut State Medical Journal, Hartford

9:505-584 (July) 1945

- How Shall We Obtain Our Postwar Physicians? J. B. Conant and W. C. Rappleye.—p. 505.
Common Bile Duct Surgery: Use of Vitallium Tubes. H. E. Pearse.—p. 507.
Control of Environmental Health Hazards. A. L. Coleman.—p. 510.
Mental Problems Affecting Industrial Workers, with Special Reference to Veterans. P. J. Moorad.—p. 513.
Management's Views Concerning Employment of Physically and Mentally Handicapped Workers. C. R. Schedler.—p. 518.
Examining, Placing and Safeguarding Industrial Worker. M. I. Hall.—p. 520.
*Penicillin Treatment of Neurosyphilis. A. S. Rose.—p. 522.
Safety Glass Program. P. W. Tisher.—p. 525.
Evaluation of Premarital Examination Law in Connecticut. M. R. Hahn.—p. 528.
Medical Education—Old Purposes and New Methods. H. R. Viets.—p. 530.

Penicillin in Neurosyphilis.—During the past fourteen months the neurosyphilis service of the Boston Psychopathic Hospital has treated 140 cases of symptomatic neurosyphilis. The treatment consisted of one half the usually prescribed amount of fever therapy and penicillin, given concurrently or in succession. Sodium penicillin dissolved in saline solution was administered intramuscularly for a total dose of 3,000,000 Oxford units. According to Rose, penicillin is an active therapeutic agent in all forms of neurosyphilis but the degree of effectiveness has not been determined. The best results are

obtained in syphilitic meningitis. A small series of cases of primary optic atrophy have shown surprisingly good results. All forms of parenchymatous neurosyphilis apparently need fever therapy as well as penicillin. Penicillin is an agent which acts directly on the invading organisms and therefore can be useful only in cases in which there is evidence of spirochetal activity.

Journal of Lab. and Clinical Medicine, St. Louis

30:559-638 (July) 1945

- *Immunologic Studies in Patients with Subacute Bacterial Endocarditis Treated by Combined Penicillin-Heparin Method: I. Sensitivity to Penicillin. M. Grohnick and L. Loewe.—p. 559.
Effect of Artificially Induced Fever on Humoral Antibodies and on Histamine Intoxication in Guinea Pig. R. Y. Gottschall, D. Laurent and P. DeKruif, in Collaboration with W. M. Simpson, H. W. Kendall and D. L. Rose.—p. 563.
*Studies on Rickettsial Agglutination in Typhus. F. K. Fitzpatrick.—p. 577.
Behavior of Blood Cholesterol in Thyrotoxic Patients Under Treatment with Thiouracil. T. H. McGavack and I. J. Dreker.—p. 586.
Note on In Vitro Respiration of Muscle in Myasthenia Gravis. F. J. Stare and H. T. Ricketts.—p. 589.
Effect of Insulin on In Vitro Respiration of Human Skeletal Muscle. H. T. Ricketts and F. J. Stare.—p. 594.
Effect of Ultraviolet Irradiation on Blood Hemoglobin. A. P. Barer and W. M. Fowler.—p. 600.
Effect of Digitalis, Epinephrine and Surgery on Response to Heparin. C. Moses.—p. 603.

Subacute Bacterial Endocarditis.—Twenty-seven patients receiving intensive and prolonged treatment with penicillin failed to develop any positive skin or ophthalmic reactions to a solution of penicillin containing 10,000 units per cubic centimeter. They did not develop positive skin reactions to the source of this product, the mold *Penicillium notatum*. The dosage of penicillin had been high, treatment had been given over long periods of time, and in nearly one half of the patients therapy had been administered in interrupted courses. These circumstances would ordinarily favor active sensitization to the drug employed if a potent antigenic substance was involved. The results indicate that penicillin is not a potent antigenic product. The most striking data concern a man who had received six courses of therapy over a total period of 230 days, of which 185 were actual treatment days. The courses ran from 12 to 52 days, the free intervals from 2 to 13 days. The smallest dose in any one course was 2,700,000 units and the largest was 44,500,000 units. The total dose given during the entire period of treatment was 112,620,000 Oxford units. The patient did not develop sensitivity to penicillin nor did he show positive skin reactions to penicillin.

Rickettsial Agglutination in Typhus.—Fitzpatrick's report deals with the results of agglutination tests obtained over a period of years with a variety of serums from man and animals infected with or vaccinated against typhus, with the cross-agglutinations encountered and with serum absorption experiments. Some of the agglutinations were performed with the tissue culture antigen, but for the most part the antigens used were prepared from the yolk sacs of infected eggs. For the agglutination test, glass slides having twelve depressions were used. The serum to be tested was set up in tubes in doubling dilutions, and one drop of each dilution was transferred to the slide with a capillary pipet. An equal volume of antigen was added. The slides were then rotated by hand to secure thorough mixing and placed on moist paper in Petri dishes in the incubator at a temperature of 40 C. For uniform results the slides were left in the incubator for five hours. They were then placed in the ice box overnight, after which a final reading was made with the low power objective of an ordinary microscope. With serums which show a titer of 1:80 or above, agglutination in the lower dilutions is visible to the unaided eye after incubation for from thirty to sixty minutes and in much less time if the rotation of the slide is carried out for two minutes. When the test is being used for diagnostic purposes this rapid agglutination is of practical importance. The microscopic agglutination test as used was found to be an easy and convenient means for the diagnosis of typhus in human serums and proved to be a useful tool for the study of agglutinin development in man and animals following infection or vaccination. The observations of Castañeda on the removal

of heterologous typhus agglutinins were confirmed. Serums from rabbits infected with spotted fever did not agglutinate either of the typhus antigens. Serums obtained from cases of endemic typhus were found not to agglutinate spotted fever antigen.

Public Health Reports, Washington, D. C.

60:789-820 (July 13) 1945

Studies in Connection with Selection of Satisfactory Culture Medium for Bacterial Air Sampling. R. Schneider, J. E. Dunn and Barbara H. Caminita.—p. 789.

60:821-852 (July 20) 1945

Influenza and Pneumonia Excess Mortality at Specific Ages in Epidemic of 1943-1944, with Comparative Data for Preceding Epidemics. S. D. Collins.—p. 821.

Outbreak of Salmonella Infection in Man from Infected Chicken Eggs. J. Watt.—p. 835.

Susceptibility of Golden Hamster (*Cricetus Auratus*) to Tularemia. C. L. Larson.—p. 839.

60:853-883 (July 27) 1945

Influenza and Pneumonia Excess Mortality at Specific Ages in Epidemic of 1943-1944, with Comparative Data for Preceding Epidemics. S. D. Collins.—p. 853.

Relative Value of Liquid Media, Glucose Cystine Blood Agar and Mouse Inoculation in Titration of *Pasteurella Tularensis*. C. L. Larson.—p. 863.

Use of Lawson's Bean Medium for Laboratory Detection of *Mycobacterium Tuberculosis* in Sputum. F. L. Evans.—p. 868.

Radiology, Syracuse, N. Y.

45:1-106 (July) 1945

*Intracranial Angiography. C. F. List, C. H. Burge and F. D. Hodges.—p. 1.

Roentgen Observations on Primary Atypical Pneumonia. H. W. Jamison.—p. 15.

Roentgen Appearance of Lobar and Segmental Collapse of Lung. L. L. Robbins and C. H. Hale.—p. 23.

Atrophy of Terminal Phalanges in Clubbing and Hypertrophic Osteoarthropathy. H. S. Weens and C. E. Brown.—p. 27.

*Treatment of Carcinoma of Prostate by Irradiation. A. D. Munger.—p. 31.

Roentgen Study of Ankle in Severe Sprains and Dislocations. E. P. Pendergrass and J. O. Lafferty.—p. 40.

Osteogenic Sarcoma of Skull. L. H. Garland.—p. 45.

Relationship Between Morphology and X-Ray Effects in Implants of Mouse Sarcoma 180 Irradiated with 5,000 and 60,000 Roentgens (in Air). Anna Goldfeder.—p. 49.

X-Ray Growth Zone Studies in Rat Tail for Appraisal of Chondrotropic Effects. J. Gershon-Cohen and H. Shay.—p. 56.

Depth and Exit Doses for Various Phantom Thicknesses. M. C. Reinhard and H. L. Goltz.—p. 70.

Intracranial Angiography.—Blood vessels momentarily rendered densely opaque serve as reference points in detecting disturbances of anatomic relationships produced by intracranial lesions. This method, useful when vascular displacement provides evidence of disease in neighboring tissues, is of special value when the vessels are involved directly. Intracranial angiography has been used systematically at the University Hospital of Ann Arbor since January 1941 in situations in which this method of study appeared to offer the likelihood of solving particularly difficult diagnostic problems. In three years 127 patients have been subjected to this type of examination. In the bulk of these the carotid system was injected; vertebral arteriography was used in only 6 instances. When the indications for its use are clear, intracranial angiography may be employed without danger to the patient if certain conditions are observed. There has been no fatality attributable to the procedure in the 127 cases which they have observed. It is inadvisable to inject any material into the circulation of the brain in cases of extreme arterial hypertension, far advanced arteriosclerosis, acute intracerebral or subarachnoid hemorrhage, recent thrombosis, or embolism of cerebral vessels. Even in the absence of such contraindications, one may occasionally encounter transient hemiparesis, hemiparesthesia, aphasia, convulsive manifestations or temporary accentuation of presenting neurologic signs. Such untoward effects occurred in less than 3 per cent of the patients examined by the authors, and in no instance did they persist. Similar symptoms are as common after pneumographic procedures. Actually angiography is better tolerated than ventriculography in certain cases of expanding lesions associated with high intracranial pressure, because intracranial hydrodynamics are not materially altered. Transcutaneous arterial injections,

advocated by some authors, do not appeal to List and his associates, who prefer the direct surgical approach, which eliminates the likelihood of extravascular leakage and inadvertent dislodgment of the needle with consequent danger of uncontrolled bleeding. Egas Moniz uses the simple surgical procedure of exposing the common carotid at the base of the neck. The authors feel that it is only slightly more difficult to prepare the internal carotid for injection and that this approach holds the total amount of contrast material needed at a minimum and obviates annoying shadows cast by branches of the external carotid. Despite its undesirable property of long half-life radioactivity, thorotrast in amounts not exceeding 25 to 30 cc. is the most satisfactory contrast material at present available for intracranial angiography.

Irradiation in Carcinoma of Prostate.—During the two year period ended in May 1943, 27 cases of carcinoma of the prostate were seen by Munger, 12 of which were treated by resection with regional and testicular irradiation, 8 by resection, irradiation and estrogen therapy, and 7 by orchiectomy. The most effective stabilization has occurred among those who were treated by resection, testicular and regional irradiation, and adjunct estrogen therapy coincident with the x-ray treatments. The development of carcinoma of the prostate is seemingly related to the gonadal and extragonadal depots of androgen production. Surgical castration relieves only the gonadal depots of hormonal production. Adequate testicular and regional irradiation definitely dissipates hormonal production. The female hormone depresses androgenic activity.

South Carolina Medical Assn. Journal, Florence

61:129-156 (June) 1945

Hare Lip and Cleft Palate: Plan of Management. W. H. Prioleau.—p. 129.

Recovery from *Streptococcus Viridans* Bacteremia: Case Report. G. D. Johnson.—p. 131.

Pregnancy Spacing in South Carolina from Public Health Standpoint. J. B. Nettles.—p. 132.

Surgery, Gynecology and Obstetrics, Chicago

81:113-224 (Aug.) 1945

Evolution of Sphincter Muscle Preservation and Reestablishment of Continuity in Operative Treatment of Rectal and Sigmoidal Cancer. H. E. Bacon.—p. 113.

Experiences with Aneurysms in Overseas General Hospital. S. P. Harrison.—p. 128.

*Penicillin Therapy in Acute Osteomyelitis. W. A. Altemeier and J. A. Helmsworth.—p. 138.

Treatment of Intrathoracic Wounds. W. M. Tuttle, H. T. Langston and R. T. Crowley.—p. 158.

Experience with Lumbar Sympathetic Ganglionectomy for Wounds of Major Blood Vessels of Lower Extremity. J. M. Mason III and W. P. Giddings.—p. 169.

Aseptic Gastric Resection. A. Monteiro.—p. 177.

*Sucking Wounds of Chest. C. S. Welch and J. E. Tuhy.—p. 183.

Electrodiagnosis by Means of Progressive Currents of Long Duration: Studies on Peripheral Nerve Injuries in Man. L. J. Pollock, J. G. Golseth, A. J. Arieff and F. Mayfield.—p. 192.

Effect of Cotton and Catgut in Hernial Repair on Postoperative Temperature and Pain. R. W. Zollinger and W. J. Flynn.—p. 201.

Para-Articular Calcification (Pellegrini-Stieda) in Affections of Knee. I. W. Nachlas and J. L. Olpp.—p. 206.

Thenar Palsy Due to Compression of Median Nerve in Carpal Tunnel. R. B. Zachary.—p. 213.

Decidual Reaction of Endometrium Ectopic in Abdominal Lymph Node. H. B. Russell.—p. 218.

Penicillin in Acute Osteomyelitis.—Altemeier and Helmsworth treated 34 cases of acute osteomyelitis with penicillin. There were 25 cases of acute hematogenous osteomyelitis of the long bones, in some of which also the flat bones of the pelvis were involved. There were 3 cases of infection of the pelvic bones only, 5 of the facial and cranial bones, and 1 of the ribs. The ages of the patients showed the prevalence of the disease in the young. Nine of the patients were females and 25 were males, a fact emphasizing the higher incidence of the disease in the male. The etiologic agent was the hemolytic *Staphylococcus aureus* in 29 cases. Solutions of the sodium salt of penicillin in sterile isotonic solution of sodium chloride with a concentration of 5,000 units per cubic centimeter were used in all but 1 case, in which the calcium salt was employed. The solution was administered by continuous intravenous drip in 10 cases and by interval intravenous or intramuscular injection in the remainder. A dose of 1,500,000 or more units administered

over a period of two or more weeks is the effective dosage. If the diagnosis was made early and penicillin treatment instituted promptly without surgical drainage, both general and local infections were brought under control so thoroughly that a minimal amount of residual bony damage resulted. Moderate delay in diagnosis and treatment increased the extent of bony damage, but the infection was nevertheless quickly arrested without the aid of drainage and without sequestration. Small localized abscesses were treated satisfactorily by aspiration followed by injection of a solution of penicillin. Large abscesses were treated by prompt incision. Delay in diagnosis and treatment not only increased the degree of bony damage but favored the development of large abscesses, sequestrums and metastatic visceral infections. Penicillin is a powerful and effective chemotherapeutic agent in the treatment of acute osteomyelitis. When administered early and in adequate amounts, it reduces the mortality and morbidity, brings the infection under control, minimizes local destruction of bone and resultant deformities, permits spontaneous removal of necrosed bone and healing and makes possible early return of normal or nearly normal function.

Sucking Wounds of Chest.—During a three month period 70 patients with sucking wounds of the chest were treated in an evacuation hospital. In 49 instances the wounds were of the penetrating type; in 20 they were perforating through and through, and there was 1 gutter type of wound. Right sided wounds were nearly twice as common as left sided. Presumably left sided wounds were more frequently fatal on the battlefield. Slight to moderate dyspnea was present in two thirds of the patients, most of whom required oxygen. All patients with sucking wounds were treated in the shock ward, and oxygen therapy was started if necessary. Patients were left on the same litter until they arrived at the surgical ward and sometimes until they reached the postoperative ward. A transfusion of stored citrated blood was begun as soon as possible in those showing signs of shock and hemorrhage. When a patient was out of shock and was not uncomfortable out of oxygen, he was sent to have roentgenograms made. While sucking chest wounds had surgical priority, it was thought that once they had been sealed and shock overcome it was time well spent to let the circulatory and respiratory mechanisms adjust themselves. Three principal types of thoracic operation were performed: (1) wound débridement and closure of the chest opening, (2) thoracotomy and (3) thoracotomy plus transdiaphragmatic exploration of the upper abdomen. Six of the 70 patients died without surgical treatment. Postoperative treatment is directed toward the correction of circulatory and respiratory disturbances, reexpansion of the lung and prevention of infection. The overall mortality rate, 24 per cent, and the operative mortality rate, 17 per cent, were higher than those for other patients with penetrating and perforating wounds of the pleural cavity.

Texas State Journal of Medicine, Fort Worth

41:53-128 (June) 1945

- Use of Spinoecain as Spinal Anesthetic. L. W. Pollok.—p. 59.
Problems in Rheumatic Fever. A. W. Harris.—p. 62.
Fibrosis of Pancreas and Its Relation to Chronic Nutritional Disturbance and Pancreatic Achylia. D. W. Freeman.—p. 69.
Cervix that Will Not Dilate. J. Melver.—p. 72.

41:129-176 (July) 1945

- Socialized Medicine in France. J. V. Sparks.—p. 135.
Battle Injuries of Urethra with Urinary Fistula. T. P. Shearer, T. B. Wiper and J. M. Miller.—p. 137.
Important Foot Fault. G. W. N. Eggers.—p. 140.
Veratrum Viride in Treatment of Preeclampsia, Eclampsia and Other Hypertensive Syndromes of Pregnancy: Preliminary Report. J. E. Harkins.—p. 143.
Heart Injuries, with Report of 3 Cases. C. D. Reece.—p. 151.
Interesting Diagnostic Problem. S. E. Thompson and W. W. Coulter Jr.—p. 157.
Present Status of Tuberculous Eye. A. E. Jackson.—p. 161.

Veratrum Viride in Hypertensive Syndromes of Pregnancy.—Harkins reviews observations on 34 cases of severe preeclampsia and 14 cases of eclampsia. Evidence is presented that vasospasm of the terminal arterioles plays an important role in the pathogenesis of the disease. Emphasis is placed on veratrum viride as a vasodilator. Only one preeclamptic patient developed eclampsia under the described treatment. Rapid control of convulsions was accomplished by a combined therapeutic

regimen which included hypertonic glucose by vein, magnesium sulfate intramuscularly and veratrum viride hypodermically. Cesarean section was not deemed necessary in any of the preeclamptic or eclamptic patients. There were no stillborn infants among the preeclamptic patients and only 1 among the eclamptic. The use of veratrum viride in some of the other hypertensive syndromes of pregnancy is believed to be of value and is under further investigation. A series of 11 such cases is presented. Veratrum viride, in the form of a purified aqueous solution of the active alkaloid, can be given in therapeutic doses without signs of drug intoxication, without producing vascular collapse and without the need of antidotes.

Union Médical du Canada, Montreal

74:877-1040 (July) 1945

- *New Form of Goiter: Sclero-Lympho-Lipomatosis of Thyroid. L. C. Simard.—p. 884.
Nature and Origin of So-Called True Hypernephroma of Kidney. J. L. Riopelle.—p. 889.
Preliminary Note on New Technic of Analgesia and Anesthesia in Obstetrics. M. Clermont and J. Cagnon.—p. 897.
Report on the First Three Years on Anticancerous Center of Hospital of Notre Dame. L. C. Simard.—p. 906.
Staphylococic Meningitis Treated and Cured by Penicillin. R. Amyot.—p. 909.
Spontaneous Pneumothorax: 2 Benign Spontaneous Cases. J. P. Paquette.—p. 912.
Syndrome of Waterhouse-Friderichsen in Nursling of 5 Months. N. Vézina.—p. 919.
Ulcerative Colitis: Case. J. Jobin.—p. 923.
Cancer of Larynx. C. E. Côté.—p. 932.

New Form of Goiter.—Simard presents the case of a girl aged 11 who since birth had presented a swelling in the front of the neck. At the time of clinical examination in August 1944 the thyroid was about five times the normal size. The metabolism was normal to plus 3. A thyroidectomy in September 1944 revealed that the left lobe was the size of a fist and the right about four times the normal size. The entire thyroid gave the impression of fatty infiltration. Large stumps of the thyroid were left in place because of fear of postoperative myxedema. The child was in good health several months after the operation. Macroscopically the removed specimen did not resemble thyroid tissue; it was soft and pale yellow. With slight magnification it was impossible to distinguish thyroid tissue; the gland was transformed into fat tissue divided by numerous connective tissue walls which contained lymphoid islands with clear centers. Strong magnification revealed the structure of the thyroid gland but probably reduced to its most simple form. Small thyroid vesicles appeared in the connective tissue walls or in the lymphoid infiltrations. The connective tissue was abundant particularly in the peripheral parts of the gland, where it formed sclerous regions in which a few glandular vesicles persisted. In a subcapsular region the author found a small adenoma the size of a pea. He suggests that other adenomas might exist in parts he could not examine and that their presence explains the absence of thyroid insufficiency. The lesions can be designated as thyroidal sclerolympholipomatosis. This is not a case of Riedel's ligneous thyroiditis. It slightly resembles Hashimoto's goiter, but this occurs almost exclusively in women around 50, whereas the lesion in question began during intrauterine life. The author thinks that it is a congenital malformation associated with disease of the adipose tissue, for not only is the thyroid infiltrated with fat tissue but multiple lipomas have been found on the neck and another one is beginning in the left axilla.

West Virginia Medical Journal, Charleston

41:177-204 (July) 1945

- "To Care for Him Who Shall Have Borne the Battle." T. L. Harris.—p. 177.
Somatic Aspect of Emotional Reactions. F. R. Stern.—p. 179.
Management of Foreign Bodies in Air and Food Passages. V. L. Lance.—p. 185.
Technic for Circumcision. E. S. Phillips.—p. 188.
Management of Rheumatoid Arthritis. R. J. Stevens.—p. 190.

41:205-228 (Aug.) 1945

- The Doctor and Public Health Problems. C. W. Meadows.—p. 205.
Management of Inoperable Cancer. N. Treves.—p. 208.
Evaluation of Poliomyelitis. W. L. Oliver.—p. 218.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Lancet, London

1:711-742 (June 9) 1945

- Total Medicine: Harvey Lecture, A. Hood.—p. 711.
Effect of Underwater Explosions on Human Body, C. P. G. Wakeley.—p. 715.
Synthesis and Destruction of Nicotinic Acid by Mixed Cecal Flora of Man, R. Benesch.—p. 718.
Agar for Local Penicillin Therapy, R. B. Coles, A. N. Barker, S. T. Cowan and E. A. Robertson.—p. 720.
Eosinophilia with Chronic Peritonitis, C. G. Parsons.—p. 721.

1:743-774 (June 16) 1945

- Health of Four Hundred Millions, J. N. Morris.—p. 743.
*Systemic Administration of Penicillin: Absorption from Body Cavities, M. E. Florey and N. G. Heatley.—p. 748.
*On Sulfadiazine Dysuria, R. P. Jepson and C. W. M. Whitty.—p. 751.
Infection of Cat-Bite Wound, T. V. Cooper and R. Moore.—p. 753.

Absorption of Penicillin from Body Cavities.—Florey and Heatley report studies that were carried out to ascertain whether a suitable dose of penicillin injected into serous or abscess cavities would not only act locally but produce a prolonged and effective level of the drug in the blood stream. The route in most cases investigated has been the pleural cavity, but penicillin has also been given via the knee joint, intrathecal space and abscess cavities. A single injection following aspiration, at the rate of 120,000 units in twenty-four hours, has been given to adults. For children up to 8 years 1,000 units per pound of body weight in twenty-four hours was used—an amount which, given in divided doses by the intramuscular route, has been generally found adequate to maintain bacteriostasis. The presence of a bacteriostatic concentration in the blood stream (or "serum inhibition") was tested for by the drop-on-slide method. Injection of 120,000 units of penicillin into a pleural cavity, after aspiration of an effusion, ensured a bacteriostatic concentration of the drug in the blood stream for twenty-four hours or more; 240,000 units produced a similar effect for about forty-eight hours. Injection of 120,000 units into 2 intact but infected knee joints produced the same effect for at least thirteen hours in 1 case and twenty-four hours in the other. Injection of 120,000 units in 2 adults, and its equivalent in an infant, into the intrathecal space produced the same effect for about fifteen hours. The protracted systemic effect, due to slow absorption does not appear to be an exclusive property of serous membranes but is associated also with cavities in the body not lined with such membranes, such as abscess cavities. Clinical application of these findings has already given good results in (a) the prophylaxis of postpneumonecctomy infection and (b) the treatment of pneumonia, pyemia, osteomyelitis, and streptococcal arthritis when accompanied by pleural or synovial effusion.

Sulfadiazine Dysuria.—During the treatment of some 450 penetrating head wounds with sulfadiazine, Jepson and Whitty had an opportunity to study the dysurias occurring with this drug. After an initial 3 Gm. intravenously, 3 Gm. was given by mouth four-hourly for forty-eight hours, then six-hourly for a further forty-eight hours. In the first 40 cases so treated 20 grains (1.3 Gm.) of sodium bicarbonate and the same amount of sodium citrate were given with each dose of sulfadiazine. No special attention was paid to fluid intake apart from maintaining an average daily intake of about 8 pints (3,840 cc.). In this series there were 6 cases (15 per cent) of poisoning. This comparatively high incidence caused the authors to review the alkali and fluid intake, and thereafter, in a further series of 410 cases, with each dose of sulfadiazine, 40 grains (2.6 Gm.) of sodium bicarbonate and 30 grains (2 Gm.) of sodium citrate were given and a total fluid intake of 10 pints (4,800 cc.) in twenty-four hours was aimed at. In this series 11, or 2.5 per cent, of patients developed dysuria; that is, there was a total of 17 cases of dysuria among 450 patients with head wounds. The incidence bears a close relation to urinary pH ; no case occurred with a pH of over 6.5. No sulfadiazine deposit was

found in any urine examined with a pH of over 7.5. Neither dosage nor length of administration appears to affect the incidence. Intense abdominal pain with loin tenderness, oliguria and blood stained urine are the presenting symptoms. Prophylaxis depends on the control of urinary pH and output. Treatment is by intensive intravenous fluids with alkalis. In only 5 cases was ureteral catheterization done, and it was probably necessary in only 2. None of these cases were fatal.

Revue d'Immunologie, Paris

9:1-80 (Nos. 1 and 2) 1944-1945. Partial Index

- Specific and Nonspecific Phenomena in Mechanism of Aggressive Action of Glucolipidic Antigens, A. Boivin and A. Delaunay.—p. 1.
Study of Antigens and of Isolated Bacilli During Epidemic of Typhoid in Lyons in 1943-1944, P. Sedallian, P. Monnet and A. Berthoye.—p. 14.
Comparative Intradermal Reactions with Crude and Highly Purified Diphtheria Toxoid: Pathogenic Deductions, R. Sollier and Rabyl.—p. 39.
Flocculation Method: Twenty Years of Application to the Titration of Antidiphtheric Serums for Therapeutic Use, G. Ramon and R. Richon.—p. 42.
*Antitetanic Serotoxoid Therapy in General and Its Employment in the Treatment of Manifest Tetanus in Domestic Animals, G. Ramon, E. Lemétayer and R. Richon.—p. 41.
Serotherapy of Diphtheria in France: A Half Century of Application: Its Origin, Progress and Results: Deductions and Conclusions, G. Ramon.—p. 50.
Comparative Dosage by Flocculation and by In Vivo Method of Antitoxin in Antitetanic Serums, G. Ramon, E. Lemétayer and B. Vrat.—p. 67.
*First Results of Obligatory Antidiphtheric Antitetanic Vaccination in Children: Diphtheria Becomes a Disease of Adults, R. Poulain.—p. 70.

Antitetanic Serotoxoid Therapy in Manifest Tetanus.—Ramon and his associates state that the idea of utilizing toxoids not only for the prevention but also for the treatment of toxic infections was first realized by the employment of staphylococcal toxoid in the treatment of various staphylococcal disorders. In an infection like tetanus with its usually rapid evolution the use of toxoid with its relatively slow action involves the risk that the patient may succumb before deriving benefit from the toxoid. Thus the injection of antitetanic serum remains the first and most urgent measure in manifest tetanus. The antitoxin immediately furnishes the means to fight the invading intoxication. Toxoid therapy added to serotherapy will complete the effects of the serotherapy. Numerous experimental studies and trials on human subjects permit the formulation of therapy of developing tetanus consisting in simultaneous injections of a massive dose of antitetanic serum and of a convenient quantity of tetanic toxoid, the latter being renewed several times at four or five day intervals. The early injection of a massive dose of antitetanic serum furnishes at once the quantity of antitoxin necessary for the neutralization of the toxin already in circulation or which the organism continues to elaborate. This method dispenses with the daily serum injections. The toxoid complements the action of the serum in the course of tetanus, and the combination of serum and toxoid insures the stability and permanence of the antitetanic immunity and protects the cured subject against new attacks of tetanus.

Results of Obligatory Antidiphtheric-Antitetanic Vaccination.—Poulain reports a severe epidemic of diphtheria in Lyons during the year 1943 following an increase observed in 1942. It involved the adult population, among whom the percentage of the vaccinated was very small and children up to 3 years of age before their vaccination. The antidiphtheric antitetanic vaccination with the mixed toxoid of Ramon mitigated this outbreak in children of all ages in proportion to the number that had been vaccinated. Vaccination has prevented numerous cases of diphtheria among children, who are more susceptible than adults to epidemic outbreaks of diphtheria. It can be affirmed that when all children are correctly vaccinated diphtheric morbidity will become small and the mortality zero for the population of children. Vaccination will probably become necessary for adults up to the age of 30, since the diphtheric morbidity is considerable and the mortality far from negligible for this part of the population. It might be advisable to make obligatory a renewed vaccine injection at the age of 15 years on leaving school.

Book Notices

Preventive Medicine. By Mark F. Boyd, M.D., M.S., C.P.H., Field Staff Member, International Health Division, Rockefeller Foundation. Seventh edition. Cloth. Price, \$5.50. Pp. 591, with 187 illustrations. Philadelphia & London: W. B. Saunders Company, 1945.

As a convenient guide and reference book for teachers of undergraduate medical students in the required course in preventive medicine in the second or third year, this well tested book has a respected and commendable place, as will be acknowledged in greeting this edition. In the process of simplifying the subject and abbreviating the text for the purpose, the author's classification of the preventable diseases lacks desirable distinctions and some major categories. Habit forming drugs such as alcohol, tobacco and those of the morphine and cocaine series might better be separately dealt with and not, as is alcohol, under diseases due to dietary deficiencies. Cancer, so far as preventable, would seem to justify at least a mention and preferably a chapter to itself. There are preventable aspects of mental diseases other than those related to nutritional defects which would seem to claim attention. The allergies are not dealt with, as they might well be, from the environmental and hereditary points of view as preventable conditions of ill health.

Of the thirty-seven chapters, the second to the twenty-third inclusive, which deal with the communicable diseases, are much the most satisfactory and authoritative. Those on heredity and disease (29), the hygiene of infancy and childhood (30 and 31), air heating and ventilation (32) and certain aspects of personal hygiene (33) are not of as high a quality. The 10 pages out of 560 which are devoted in chapter 37 to public health offer but a sketch which will add little to the general information of the medical student.

With such books as those of Rosenau, Mustard and Smillie widely used for students of medicine and public health, the role of the condensed and simplified textbook is less important than it was twenty-five years ago.

The chapters are of good class-session length. The bibliography (pp. 560-566) is good in selection and length. The index is entirely adequate.

The author appears to have a low regard for physicians and their part in initiating, promoting and cooperating in measures of preventive medicine, as expressed in the foreword and elsewhere. The reviewer considers this unfortunate and not consistent with the facts of experience in the United States of America over the past quarter century. An alternative for the foreword is herewith offered as expressing more nearly the truth of the situation: The medical profession does and will always play the leading role in preventive medicine and public health, chiefly in private practice and necessarily in public service. Physicians are making increasing use of their opportunities and the public interest in preventive medicine. There continues to be the heartiest and practically unanimous cooperation between the medical profession and the public health authorities, and thus the students of today should understand and take part in.

Pharmacology and Dental Therapeutics: A Textbook for Students and Practitioners. By Hermann Prinz, A.M., D.D.S., M.D., and U. Garfield Rickert, A.M., D.D.S. Ninth edition by Edward C. Dobbs, D.D.S., Associate Professor of Pharmacology, Dental School, University of Maryland, Baltimore. Cloth. Price, \$6.50. Pp. 567, with 35 illustrations. St. Louis: C. V. Mosby Company, 1945.

The rearranged contents and standardized names and dosages acceptable to both the American Dental Association and the American Medical Association will keep practitioners abreast of the current knowledge of drugs and their usage. The section devoted to dental therapeutics will be most valuable to the dental practitioner. The authors' advocacy of caution in the use of sulfonamide drugs and of penicillin is supported by the findings of Drs. Canfield, Everett and Ferguson. The authors also point out the fact that relationship between phosphorus metabolism and dental caries and periodontoclasia has not been established and that the direct action of vitamins in the animal body is not thoroughly understood. The numerous prescriptions given are of considerable value to dental practitioners and will enable them to discontinue the use of proprietary drugs, which are usually excessively priced. The book is well got up. The paper is excellent, the type large and clear.

Non-Penetrating Injuries of the Heart. By G. J. C. Brittain, M.B., Ch.B. A Thesis Accepted for the Degree of M.D. (Liverpool). Paper. Pp. 77, with 47 illustrations. Derby, England: The Author, [n. d.].

As the author states in his introduction, there is little or nothing to be found in the average textbook with regard to the subject of nonpenetrating injuries to the heart, but this is largely "owing to the fact that until quite recently the existence of the condition has been looked upon with considerable skepticism." Much of this skepticism has been fostered by the not very critical reports of such injuries. In addition to this, in many cases in which there are so often doubtful objective findings or findings not definitely correlated with the injury, physicians have been inclined to feel that the possibilities of compensation were a more potent etiologic factor than the injury itself.

This short but comprehensive study is important in redirecting the attention of the physician to this type of injury, its diagnosis and its importance. We are prone to forget how elastic the thoracic cage is and that the sternum can be pushed back by a sudden blow or a blast injury far enough to contuse the heart, without any evidence of external injury and without any fracture of ribs or sternum.

In this small volume the author gives a comprehensive review of the problem and of the history, the signs and symptoms arising from the condition, followed by reports of 18 cases. A complete bibliography adds to the value of this contribution to a subject too often disregarded.

Textbook of Neuropathology. By Arthur Weil, M.D., Associate Professor of Neuropathology, Northwestern University Medical School, Chicago. Second edition. Cloth. Price, \$5.50. Pp. 336, with 287 illustrations. New York: Grune & Stratton, 1945.

Separate departments of neuropathology have been established in many medical schools and hospitals in this country in the last twenty years. As a result new material has accumulated, now finding its way into textbooks. Prior to 1933, when Dr. Weil published the first edition of this book, there was only one other book in English, except for the translations of German textbooks. Since 1933 at least four new monographs have appeared on the same subject and a journal has been established in this country giving stimulus and encouragement to research. As a reflection of this activity, Dr. Weil has issued a second edition of his well established book, twelve years after the first. In it he has incorporated the advances in neuropathology during the intervening years and corrected minor errors appearing in the first edition. The present volume furnishes a compact, clearly written account of the subject meeting the essentials needed of a student of medicine or a beginner in a laboratory of pathology. The text is authoritative. References are satisfactory and the illustrations were chosen with discrimination. There is a brief section on staining technic.

Galen on Medical Experience. By R. Walzer. First edition of the Arabic version with English translation and notes. Published for the trustees of the late Sir Henry Wellcome. Cloth. Price, \$4. Pp. 164. New York, London & Toronto: Oxford University Press, 1944.

This offers to the student of medical history an opportunity of becoming acquainted with a work which was once considered lost. It is important for knowledge of the empirical school, and it presents a survey of the philosophical conceptions of Galen's time. The Arabic manuscript from which the translation was done is the only one in which this work is complete. The Arabic translation, done by Hubaish ibn al-Hasan al-A'sam, is of an exceptionally high standard. The authenticity of the treatise is assured by many important facts which are referred in the preface. It is interesting to note that this treatise was intended to reproduce a disputation between Pelops, a physician belonging to the dogmatic school, and the empiricist Philippos. Galen affirmed definitely his opposition to the physician Asclepiades and sustains convincingly the necessity of the close union of empiricism and theory. The English translation is excellent and makes the book very readable. The notes and bibliography give those who are not familiar with the medicine of the empire the possibility of easy orientation. For all who have an interest in the problems of experimental medicine, which were so vivaciously discussed in antiquity, this book is a precious mine of information. To all physicians who like to be informed about an important phase in the development of medicine it is a valuable source of consultation.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ANTICOAGULANT SOLUTION FOR BLOOD PRESERVATION

To the Editor:—I understand that the army blood procurement stations use an anticoagulant solution for whole blood which keeps blood suitable for use as whole blood for as long as one month. Can you supply me with the composition of this anticoagulant and preservative? M.D., Tennessee.

ANSWER.—The diluting fluid adopted during the latter part of the war for the preservation of whole blood collected by the American Red Cross for use overseas by the Army and Navy consists of 1.33 per cent trisodium citrate ($2H_2O$), 0.47 per cent citric acid and 3.0 per cent dextrose. It is used in the proportion one part of diluent to four parts of blood, i. e. 125 cc. of fluid for 500 cc. of blood. With continuous refrigeration at 4 to 10 C., the preservation of whole blood thus diluted is generally satisfactory for about thirty days, but there is some variability in the state of preservation of individual bloods at the end of that time. In practice, the dating period has been held at twenty-one days. This solution has been called ACD (acid-citrate-dextrose) by American investigators. It is essentially the same as that recommended by Loutit, Mollison and Young (*Quart. J. Exper. Physiol.* 32:183 [Dec.] 1943).

REFRACTORY PROSTATITIS

To the Editor:—I have had pus (*Bacillus pyocyaneus*) in the prostate for the past twelve years and have tried almost everything—massage, diathermy, intravenous injection of sodium iodide, autogenous vaccines, ultraviolet rays. Is sulfathiazole of value? What treatment is advised? I am 70 years of age.

M.D., Florida.

ANSWER.—It is possible that pus in the prostate gland may be associated with an enlargement of the prostate and an abnormal amount of residual urine. If so, the proper approach to the problem would be to remove the obstruction. If, on the other hand, there is only a prostatitis without any associated pathologic change, no form of treatment can be suggested that is better than prostatic massages. Clinical experience in the use of the sulfonamides and also penicillin has been disappointing in the treatment of chronic prostatitis even when the bacteria causing the infection are supposed to respond to these agents. It would seem that thorough urologic examination should be made if this has not already been done.

ETIOLOGY OF ULCERATIVE COLITIS

To the Editor:—What is the latest opinion on Barga's bacilli as to pathogenicity? Has succinylsulfathiazole been effective, and if so in what dose and for how long?

D. Guilford Dudley, M.D., Endicott, N. Y.

ANSWER.—Barga in his latest book on chronic ulcerative colitis and its modern management again emphasizes the pathogenic role of streptococci. Other investigators, however, do not consider this as established. Modern studies on the action of sulfonamides on the gastrointestinal flora have shown a change from a predominance of gram negative to gram positive organisms without modification of the clinical course. The relative as well as absolute increase in the gram positive flora without deterioration in the clinical condition of the patient may be considered as evidence against the specific pathogenicity of these cocci. The etiology of chronic nonspecific ulcerative colitis still remains obscure.

CHRONIC PROSTATITIS

To the Editor:—I would appreciate any data on the use of penicillin sodium in the treatment of old gonorrhea with chronic prostatitis and posterior urethritis. Is it known to give clinical cure in cases of fifteen to twenty years' duration with the characteristic "gleet"? M.D., Ohio.

ANSWER.—Such a lesion should not be called an old gonococcal condition because it no longer has gonococci but long since has been secondarily infected and has innumerable kinds of secondary invaders, some of which are affected by the use of penicillin but many others do not respond to this medication. It would not be considered good practice to treat such infections by the use of penicillin alone and there is no substitute for local treatment such as massage and dilation for this type of lesion. It is the consensus that penicillin in any amount does not materially add to the effectiveness of standard management.

FINGER PRINTING OF CADAVERS

To the Editor:—What is the best method of restoring fingers to normal contour for finger printing for purposes of identification? I refer particularly to cases in which death has taken place some time previously and also to postmortem shrinkages following drowning and submersion.

Robert K. Wilson, M.D., Montgomery, Ala.

ANSWER.—If decomposition has not set in and the fingers are pliable, it is sometimes possible by use of a needle syringe to inject either water or glycerin into the tips of the fingers. When this method is followed a piece of cord should be tied securely around the finger immediately below the pattern area before injecting the fluid. The finger is then ready for printing. When the patterns of the fingers are discernible they may be photographed as they are, but in the event that the skin is in an advanced state of decomposition or if there has been a hardening of the skin photography is the only resort. However, when conditions permit, the skin may be carefully removed from each finger and the underside of the pattern areas scraped until the skin is transparent. It should then be placed in a glass frame and photographed, employing an arrangement of transmitted or reflected light. Under the latter circumstances the photographic method alone is employed and there should be no attempt to obtain fingerprint impressions by the inking process.

CRUSHING THE PHRENIC NERVE

To the Editor:—Is there any procedure by means of which one may control the duration of paralysis of the phrenic nerve in the treatment of pulmonary tuberculosis?

Major, M. C., A. U. S.

ANSWER.—A thorough crushing of the main phrenic nerve trunk in only one place with the Haight phrenic crusher or with the tip of a mosquito hemostat, together with the resection of absolutely all small accessory phrenic nerve roots, produces hemidiaphragmatic paralysis of approximately six months' duration (reduced in short persons and longer in tall ones). If all accessory roots are not interrupted, a variable and unpredictable amount of diaphragmatic movement may persist after the operation or occur within a few days to several months following a period of complete paralysis. If the main phrenic nerve trunk is not thoroughly crushed, paralysis may be incomplete, or complete and brief. If the main trunk is broadly and thoroughly crushed, or crushed in several places, permanent diaphragmatic paralysis may result, or paralysis may persist for many months. As there is no known method (except by local anesthesia) for producing certain complete paralysis that does not completely destroy the axons at the site of operation, the duration of diaphragmatic paralysis necessarily depends on the rate of regrowth of axons from the nearest ganglion cells to the diaphragm. If the means used to destroy the axons resulted in only a narrow area of scar tissue, the new axons can freely pass this barrier, growing at approximately the rate of 1 mm. per diem. If, however, a broad area of crushing or an injected chemical produces a broad area of scar, the new axons may either fail to pass through this barrier or may do so after a variable period of delay, and then only some of the axons may succeed in passing the barrier, with resulting incomplete return of diaphragmatic function.

CONTRACEPTIVES, TAMPONS AND ENDOMETRIOSIS

To the Editor:—An article in *The Journal* June 9, 1945 states that "dysmenorrhea, . . . which is seen in women in the upper walks of life who have used contraceptives and vaginal tampons, is usually due to endometriosis." One infers that there may be a causal relationship. Is not endometriosis usually the result of transubal transplantation of particles of endometrium, and may it not be, at least in an occasional case, the result of such retrograde forces as may arise in the Rubin test or in the use of uterine dilators? The makers of vaginal tampons state that they cause no blockage of flow; how then may these devices be implicated in endometriosis? Can one safely advise their use? How could contraceptives, which of course are not used during menstruation, be to blame?

M.D., Colorado.

ANSWER.—It has not been proved that endometriosis has ever resulted from the use of contraceptives or vaginal tampons. It is hard to conceive that any device used in the vagina for contraceptive purposes such as a rubber diaphragm or jelly could block the external os sufficiently to force blood back through the oviducts into the peritoneal cavity. Likewise, the flow of blood from the cervix could not be obstructed by vaginal tampons even if they should extend to the external os. Furthermore, as intimated in the query, not many couples have intercourse during menstruation, and most of them who do know that there is practically no need to use contraceptives at this time. An excellent review of the subject of vaginal tampons was published by Robert L. Dickinson in *THE JOURNAL* June 16, 1945, page 490.

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SALICYLATE THERAPY IN ACUTE RHEUMATIC FEVER

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AND

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NEW YORK

The use of salicylate in the treatment of acute rheumatic fever has been common practice for many years. The dose of the drug to be employed has been the subject of much speculation, but until recently no quantitative studies had been made. It is only in the last year that there has been an attempt at correlating the efficacy of salicylate therapy with the concentration of the drug in the circulating blood plasma. The importance of maintaining the plasma salicylate level above 350 micrograms per cubic centimeter in the treatment of acute rheumatic fever has been emphasized by Coburn.¹ We have treated a series of patients with acute rheumatic fever with this aim in view and the results obtained are reported in this paper.

METHOD

Selection of Cases.—For this study cases were selected in which a definite diagnosis of acute rheumatic fever could be established. To reach the diagnosis and to follow the course of the disease, the following clinical and laboratory data were used: history, physical examination, blood count, erythrocyte sedimentation rate,² antistreptolysin titer³ and electrocardiogram.

Method of Therapy.—In most cases therapy was not instituted until twenty-four hours after admission in order to permit the collection of preliminary laboratory data. An attempt was made to maintain the serum salicylate level between 350 and 450 micrograms per cubic centimeter. Such a level will be referred to throughout the paper as the "optimal" level. In most cases sodium salicylate was administered orally; enteric coated tablets of 0.3 Gm. were used. In the beginning of the study, doses ranged from 0.9 to 1.5 Gm. every four hours, day and night. Later, in order to reach optimal levels more quickly, double these doses (1.8 Gm.-3.0 Gm. every four hours day and night) were used for the first twelve hours and then the doses were adjusted according to the levels obtained. A few of the patients received intravenous therapy for the

first two or three days. From 7 to 10 Gm. of sodium salicylate dissolved in from 250 to 500 cc. of isotonic solution of sodium chloride was given each day over a period of one to two hours. Contrary to the customary mode of therapy, sodium bicarbonate was not given because it has been shown that it tends to lower the concentration of salicylate in the blood.⁴ Salicylate serum levels were determined by the colorimetric method of Brodie, Udenfriend and Coburn⁵ every day until the level was stabilized, then every other day. The salicylate levels were determined on serum instead of plasma.⁶ Optimal levels were maintained throughout the course of the disease and for two weeks after the erythrocyte sedimentation rate had fallen below 20 mm. in one hour. Such a regimen will be referred to as "adequate" salicylate therapy. Generally the patient was allowed up during the last week of salicylate therapy, was kept one more week in the hospital without salicylate and then was discharged, unless recrudescence of rheumatic activity had occurred.

CASE REPORTS AND RESULTS

Thirty-five patients (37 attacks) were studied. Of these, for various reasons, only 21 patients (23 attacks) were adequately treated according to the criteria defined. Of these 21 patients (23 attacks), 17 patients (18 attacks) responded in a similar manner, the only difference being that, in 9 patients (9 attacks), the rheumatic activity by all available criteria had subsided within two to three weeks after the institution of therapy; in 7 patients (7 attacks) the rheumatic activity had subsided in three and one-half to five weeks and in 2 patients (2 attacks) it subsided respectively in eight and twelve weeks. The first attack of the disease in a patient whose second attack has been included in the group of 17 patients (18 attacks) hereabove, and 4 other patients (4 attacks) are included in the adequately treated group of 21 patients (23 attacks) although they do not completely fulfil our criteria of adequate therapy. These cases will be therefore summarized (see cases 17, 18, 19, 20 and 21).

Figure 1 illustrates a typical case in which rheumatic activity subsided within three weeks.

CASE 1.—A white woman aged 32, American born, had had a sore throat two weeks before admission and was admitted to the hospital complaining of migratory joint pains for two days. There was a history of a tender, red, swollen left ankle at the age of 15. Physical examination revealed a temperature of 101.2 F. and a warm, tender, slightly swollen left knee joint.

From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Medical Service of the Presbyterian Hospital.

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2. Westergren, A.: Studies of the Suspension Stability of the Blood in Pulmonary Tuberculosis, *Acta med. Scandinav.* 54: 247-282 (Jan) 1921.

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4. Smull, Katharine; Wégria, René, and Leland, Jessica: The Effect of Sodium Bicarbonate on the Serum Salicylate Level During Salicylate Therapy of Patients with Acute Rheumatic Fever, *J. A. M. A.* 125: 1173-1175 (Aug. 26) 1944.

5. Brodie, B. B.; Udenfriend, Sidney, and Coburn, A. F.: The Determination of Salicylic Acid in Plasma, *J. Pharmacol. & Exper. Therap.* 50: 114-117 (Jan.) 1944.

6. As previously reported,⁴ salicylate levels in plasma and serum from the same blood sample are not significantly different.

The heart was normal on physical examination. A diagnosis was made of acute rheumatic fever, rheumatic arthritis of the left knee and rheumatic myocarditis. The PR interval was 0.18 second on admission, increased to 0.22 on the tenth day and seven weeks later had decreased to 0.18 second. Oral salicylate therapy (18 Gm every four hours day and night for three and one-half days, then 1 Gm every four hours for three days and then 12 Gm every four hours until discharge) was started on the second hospital day. On the third day the serum salicylate level was 321 micrograms per cubic centimeter and from then on the levels were optimal until discharge. The erythrocyte sedimentation rate declined gradually from 123 on admission to 15 on the twenty-first hospital day. Salicylate therapy was continued until the thirty-ninth hospital day, at which time the patient was discharged free from symptoms.

This was a case of acute rheumatic fever with monoarthritis and electrocardiographic signs of cardiac involvement, in which the erythrocyte sedimentation rate fell and remained below 20 after twenty days of adequate salicylate therapy. The PR interval decreased

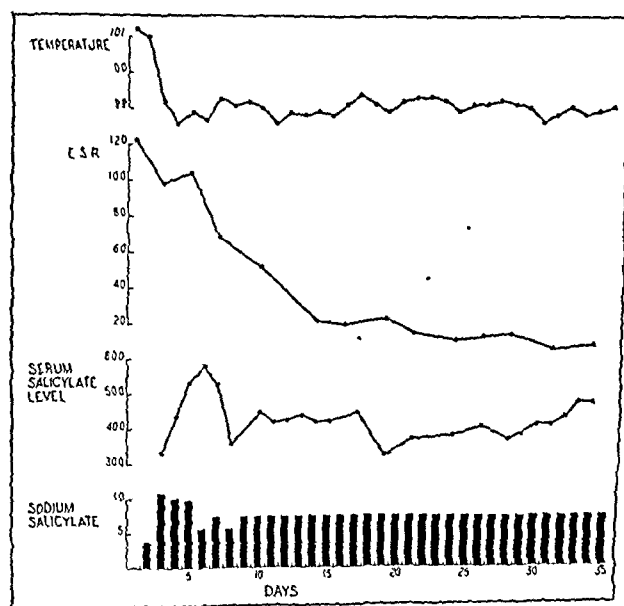


Fig 1.—Course of a patient with acute rheumatic fever who was inadequately treated. From top to bottom: temperature (in degrees Fahrenheit), erythrocyte sedimentation rate (in millimeters per hour), serum salicylate level (micrograms per cubic centimeter), oral doses of sodium salicylate (in grams). Time in days.

toward normal while the patient was on salicylate therapy and reached a normal value two weeks after treatment was discontinued.

CASE 17—A youth aged 17, a Puerto Rican, had had polyarthritis at the age of 12 and had "grip" four months before admission. After this illness he was followed for the next three months in the outpatient department. During this time the question of low grade rheumatic activity was raised because of sedimentation rates of 33 and 27 on two occasions, although the patient had no other suggestive signs or symptoms. One week before admission the erythrocyte sedimentation rate rose to 72 and the patient was admitted to the hospital with a diagnosis of acute rheumatic fever, myocarditis, mitral stenosis and insufficiency and aortic insufficiency. Oral salicylate therapy, 12 Gm every four hours day and night, was started on the second hospital day and continued for the first four days, the doses then being adjusted according to the serum levels. Optimal levels were reached on the third day of therapy (fourth hospital day) and were maintained optimal for thirty-eight days except for six days when the levels were slightly below optimal values. On admission the electrocardiogram showed a PR interval of 0.20 second and the erythrocyte

sedimentation rate was 37. On the twentieth hospital day the patient developed cardiac failure, was digitalized and was kept digitalized throughout the rest of the hospital stay. The erythrocyte sedimentation rate fell to 20 on the thirty-eighth hospital day and was 17 on the fortieth hospital day. Salicylates were withdrawn on the forty-first hospital day. The following day the temperature was 100.5 F and rose gradually to 101.5 F, four days later. The erythrocyte sedimentation rate on that day was 51. The patient complained of pains in the knees but had had no recent sore throat or upper respiratory infection. Salicylate therapy was started again (12 Gm every four hours) after an interruption of five days, and optimal levels were reached and maintained from the second day of therapy on. The erythrocyte sedimentation rate fell to 15 on the fifty-sixth day of the second course of therapy (102d hospital day). On the 106th hospital day the cardiac rhythm changed from regular sinus rhythm to auricular fibrillation. From the fifty-sixth day of the second course of therapy the erythrocyte sedimentation rate remained below 20 except for readings of 34, 22 and 30 on the 116th, 120th and 124th hospital days, and salicylates were stopped on the 142d hospital day. After one week without salicylates the erythrocyte sedimentation rate was 7 and the patient was discharged free from symptoms. From the ninety-seventh hospital day on the patient was given 15 to 2 Gm of sulfadiazine per day because the throat culture of the patient in the next bed yielded hemolytic streptococcus.

This was a case of acute rheumatic fever with myocarditis in a patient with one previous attack of rheumatic fever in which optimal levels were maintained for thirty-one out of thirty-seven days of salicylate therapy and in which the erythrocyte sedimentation rate fell from 37 to 20 after thirty-seven days of therapy. A flare-up of the rheumatic process occurred after the salicylates were stopped, and during the second course of therapy optimal levels were maintained for fifty-six days, at which time the erythrocyte sedimentation rate had fallen from 65 to 15. We do not know whether the second attack of rheumatic fever was due to a new hemolytic streptococcus infection or to the recrudescence of the still active rheumatic process which flared up because salicylate therapy was stopped too soon. Because of the latter possibility, in subsequent cases optimal salicylate levels were maintained for two weeks after the erythrocyte sedimentation rate had fallen below 20. The first attack has been included in the adequately treated group although the erythrocyte sedimentation rate had been below 20 for only four days before salicylate therapy was stopped. This seems legitimate, since what we are concerned with in this paper is the duration and not the recrudescence of the disease.

CASE 18—A Negro woman aged 50, whose past history was irrelevant, three weeks before admission had had a sore throat, which was followed by migratory polyarthritis. She was admitted to the hospital with the diagnosis of acute rheumatic fever, polyarthritis and myocarditis. Because of the presence on admission of a rough apical systolic murmur, evidently of organic origin, it was thought that, although the past history was negative, the patient had had a previous attack of rheumatic fever. Oral salicylate therapy (12 Gm every four hours day and night) was started on the second hospital day. Optimal levels were reached on the fourth day and maintained for fifty-one days. On admission the PR interval was 0.26 second and it fell to and remained at 0.16 second from the twenty-seventh hospital day on. The erythrocyte sedimentation rate fell from 117 on admission to 37 on the fifty-fourth hospital day, salicylate therapy was discontinued because it was thought that the elevated erythrocyte sedimentation rate might be due to some condition other than acute rheumatic fever. Within four days the temperature rose to 102.8 F. The patient developed a painful, red swollen left

shoulder and the erythrocyte sedimentation rate rose to 56. Salicylate therapy was resumed after an interruption of four and one-half days; optimal levels were reached within two days and maintained for thirty-eight days. On the twenty-eighth day of the second course of salicylate therapy the erythrocyte sedimentation rate had fallen to 20 and, for the next twelve days, ranged between 18 and 24. The patient then signed out.

This was a case of acute rheumatic fever with polyarthritides and myocarditis in which optimal levels were maintained for fifty-one days, during which time the erythrocyte sedimentation rate fell from 117 to 37. After an interruption of four and one-half days a second course of therapy was started during which optimal levels were maintained for thirty-eight days. By the twenty-fourth day of therapy the erythrocyte sedimentation rate had fallen to 20 and during the next twelve days ranged between 18 and 24.

CASE 19.—A youth aged 17, Irish, had had rheumatic fever at the age of 6. For the past four months he had been having fever ranging between 101 and 103 F. following an attack of "grip." He was admitted to the hospital with the diagnosis of acute rheumatic fever with rheumatic pancarditis. He had mitral stenosis and insufficiency and aortic insufficiency. Oral salicylate therapy (1.5 Gm. every four hours day and night for the first six days, then 1.2 Gm. every four hours) was started on the third hospital day. Optimal levels were maintained from the sixth to the forty-second hospital day. The temperature promptly fell from 102.6 F. on admission to 99.5 F. The erythrocyte sedimentation rate varied between 65 and 118 mm. in one hour. The patient was digitalized on the forty-second hospital day and kept digitalized throughout the admission. To substantiate the diagnosis, salicylate dosage was reduced on the forty-third day for six days and then stopped for three days. On the second day after salicylate therapy had been discontinued, the temperature gradually rose to 103 F. The erythrocyte sedimentation rate remained around 120. Oral salicylate therapy (from 1.2 Gm. to 0.9 Gm. every four hours according to the levels obtained) was started again. When levels were optimal the temperature fell around 99.5 F. On the eighty-fourth hospital day, however, the erythrocyte sedimentation rate was still around 120 and it was decided to reduce the salicylate dosage, so that the patient might be more comfortable. The levels ranged between 200 and 300 micrograms per cubic centimeter for the next two weeks. On the ninety-first hospital day the patient's temperature was 101 F. and he complained of a sore throat. Throat culture yielded hemolytic streptococcus. Salicylate doses were increased so that optimal levels were again maintained; the patient was also given 1 Gm. of sulfadiazine a day, and subsequent throat cultures were negative for hemolytic streptococcus. The patient was discharged after 136 days in the hospital with an erythrocyte sedimentation rate consistently above 100 and a temperature ranging around 99.5 F.

This was a case of acute rheumatic fever in a boy who had had one previous attack of rheumatic fever eleven years previously. He was admitted with the diagnosis of rheumatic pancarditis. Optimal salicylate levels were maintained for thirty-six days. After an interruption of about one week, optimal levels were maintained for thirty days and, after another interruption of about one week, optimal levels were maintained for thirty days more and, after another interruption of ten days, were maintained for thirty-six days. Throughout the hospital stay the erythrocyte sedimentation rate never fell below 60. It is of interest that a loud pericardial friction rub, present on admission, persisted for the first two months of the period of hospitalization.

CASE 20.—Optimal salicylate levels were maintained for twenty-three days, at which time the erythrocyte sedimentation rate had fallen from 120 to 80 and the patient left the hospital.

CASE 21.—The circumstances were similar to those noted in case 20. Optimal levels were maintained for eighty-four days, at which time the erythrocyte sedimentation rate had fallen from 127 to 40 and the patient left the hospital.

These last four cases are included in our adequately treated group because, even after long periods with optimal levels, the erythrocyte sedimentation rate was still far above normal.

Cases 22, 23, 24, 25 and 26 are not used in the estimation of the value of adequate salicylate therapy but are reported here because they show many features of interest. Cases 22, 23 and 24 ended in death from fulminating pancarditis within one week of admission. The history of case 22 is given as illustrative of this group.

CASE 22.—A Negro aged 20, who had been in the hospital for active rheumatic fever with rheumatic myocarditis at the age of 14, had acute rheumatic polyarthritides for three weeks. He was admitted with the diagnosis of acute rheumatic fever with myocarditis and pericarditis, mitral stenosis and insufficiency and aortic insufficiency. Oral salicylate therapy (1.6 Gm. every four hours day and night) was started on the second hospital day and, from the third day on, daily successive serum salicylate levels were 284, 212, 308, 377, 477 and 545 micrograms per cubic centimeter. Rapid digitalization was instituted on the third hospital day. The temperature never fell below 101 F. The heart rate remained above 100 per minute. On the eighth hospital day the temperature and heart rate increased suddenly and the patient died in heart failure with pulmonary edema.

Apparently optimal salicylate levels for three days did not modify the course of a severe rheumatic pancarditis.

CASE 25.—A white man aged 41, who had had migratory polyarthritides and iritis six years previously, had had for the past two months iritis and migratory joint pains. He was admitted with a diagnosis of active rheumatic fever, mitral valvulitis and rheumatic myocarditis. Repeated electrocardiograms showed varying degrees of auriculoventricular block, including temporary complete auriculoventricular block. Oral salicylate therapy (1.2 Gm. every four hours day and night) was started on the second hospital day and, from the third hospital day on, successive daily salicylate levels were above 310 micrograms per cubic centimeter. The temperature and heart rate were normal up to the nineteenth hospital day. Varying degrees of auriculoventricular block (partial, complete and incomplete) persisted throughout the patient's illness. On the nineteenth day, complete auriculoventricular block developed and persisted. On the twenty-second hospital day the patient began to have convulsions. The temperature gradually rose to 106.6 F. The patient lapsed into coma and died.

Because of the varying degree of auriculoventricular block, it was thought that the patient had rheumatic myocarditis in spite of a rather low erythrocyte sedimentation rate (28 mm. in one hour on admission). This impression was later substantiated by the fact that the erythrocyte sedimentation rate rose to 57. Barely optimal levels did not prevent the recurrence of complete auriculoventricular block, which, with myocardial failure, led to death.

CASE 26.—A boy aged 16 years had had rheumatic fever seven years previously. Three months before admission he had had a sore throat and mild joint pains. Two months before admission he was diagnosed in another hospital as having rheumatic fever. He was admitted with a diagnosis of acute rheumatic fever, polyarthritides, rheumatic myocarditis, mitral stenosis and insufficiency and aortic insufficiency. Because it was thought that the patient had subacute bacterial endocarditis, salicylate was not given for the first eight days. Salicylate therapy (1.6 Gm. every four hours day and night)

was started on the eighth hospital day, and in addition approximately equal doses of sodium bicarbonate were given for the first five days. Therefore the levels for the first nine days of salicylate therapy varied between 228 and 392 micrograms per cubic centimeter but were mostly below 300 micrograms. For the next thirty-three days of therapy doses were adjusted according to the levels obtained (0.9 Gm. to 1.6 Gm. every four hours day and night) and the levels were optimal. The erythrocyte sedimentation rate on admission was 30 mm. in one hour and had risen to 66 on the day salicylate therapy was started. After twenty-one days of therapy the erythrocyte sedimentation rate had fallen to 13 mm. in one hour and remained below 13 for the next thirty-one days. Optimal levels were maintained for twenty-one days after the erythrocyte sedimentation rate had fallen to 13, then levels ranging from 218 to 358 micrograms per cubic centimeter were maintained for six more days. Salicylate therapy was then discontinued. Five days before salicylate therapy was stopped, a nose culture yielded hemolytic streptococcus; three days later a circinate erythema developed on the right forearm. During the next two days the temperature rose to 103 F. and a throat culture taken at this time yielded hemolytic streptococcus. The erythrocyte sedimentation rate had risen from 3 to 16. Salicylate therapy was started (0.9 to 1.2 Gm.

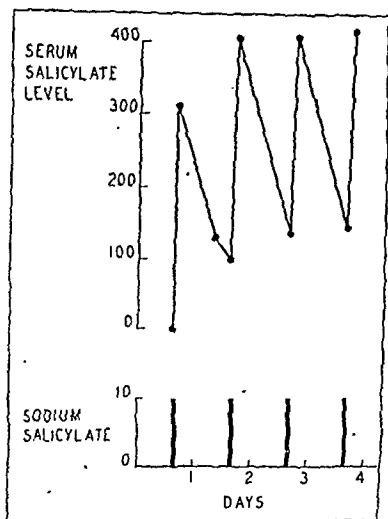


Fig. 2.—Fluctuations of the serum salicylate level in a patient receiving one daily intravenous administration of 10 Gm. of sodium salicylate dissolved in 250 cc. of isotonic solution of sodium chloride over a period of two hours. From top to bottom, serum salicylate level (in micrograms per cubic centimeter), dose of sodium salicylate (in grams). Time in days.

every four hours day and night) and from the third day of therapy on the salicylate levels were optimal. The temperature fell to around 100 F., but the erythrocyte sedimentation rate rose progressively to 80 during the next week. The patient died of cardiac failure nine days after the second course of salicylate therapy had been started (seventy-fourth hospital day). The electrocardiogram consistently showed a prolonged PR interval (0.22 to 0.32 second). Because the patient was incompletely digitalized on admission and because full digitalization was completed and maintained throughout the hospital course, the PR interval could not be used as a reliable index of myocarditis. However, it is of interest that the PR interval, which had ranged from 0.22 to 0.25 second, rose to 0.32 second during the rheumatic exacerbation which caused the patient's death.

This was a case of acute rheumatic fever with polyarthritides and myocarditis in a 16 year old boy who already had mitral stenosis and insufficiency and aortic insufficiency. The patient received salicylate therapy for twenty days, during which the erythrocyte sedimentation rate fell from 66 to 13. Levels were maintained optimal for twelve days of this period and

suboptimal for eight days. A second attack of acute rheumatic fever occurred fifteen days after a hemolytic streptococcus had been cultured from the patient's nose. In spite of optimal salicylate levels for six days the patient died of acute rheumatic myocarditis on the ninth day of therapy.

For various reasons the last 9 cases (cases 27-35) were inadequately treated according to the criteria established at the beginning of the study: either optimal levels were never reached or, when reached, were maintained for very short periods of time. These cases are included in our control group.

COMMENT

1. Method of Therapy.—At the beginning of this study a few patients received sodium salicylate by intravenous injection. It became apparent that, even when an optimal serum salicylate level was reached at the end of the infusion, it fell below optimal values by the time of the next infusion. Figure 2 illustrates a case in which maximal fluctuations of serum salicylate levels were observed.

Such fluctuations were thought to be undesirable. In 2 cases, to reach quickly optimal levels and maintain them, the oral and intravenous routes of administration were used simultaneously for the first twenty-four to forty-eight hours and then the oral route was used exclusively. However, by giving orally doses of sodium salicylate which were twice the amount assumed to be the maintenance dose, every four hours day and night for four doses, and then giving the maintenance doses every four hours, day and night, optimal levels are reached within twenty-four to thirty-six hours and are maintained. Therefore the intravenous route of administration offers no obvious advantage over the oral route and the oral route alone was used in most cases. Such massive oral dosage was possible because enteric coated sodium salicylate was used. With few exceptions, no vomiting occurred on this regimen. Although, in cases of cardiac failure, it would undoubtedly be advisable to use acetylsalicylic acid instead of sodium salicylate to avoid the administration of undesired sodium, this was not done because enteric coated acetylsalicylic acid tablets were not available.

2. Toxic Reactions.—The most common and earliest symptom of toxicity was tinnitus. This usually occurred when the salicylate level was around 200 micrograms per cubic centimeter. It is important to note that, before a method for determining the blood salicylate level was established, tinnitus was one of the criteria used by clinicians to adjust salicylate dosage. As higher levels were reached, tinnitus was replaced by deafness, which, in our experience, always disappeared within twenty-four to forty-eight hours after salicylate therapy was discontinued. Some patients were nauseated; very few vomited. A few patients had very slight transient albuminuria.

When blood levels above 500 micrograms per cubic centimeter were established, serious reactions occurred in some patients. Hyperpnea was the most common of these. During the periods of hyperpnea, the serum carbon dioxide content fell as low as 25.8 volumes per cent. A few patients developed sinus tachycardia although the temperature remained normal. The tachycardia subsided rapidly when the level fell to an optimal range. At such high levels apathy and drowsiness were the rule and several patients had intermittent auditory and visual hallucinations. One patient, who was characterized by a psychiatrist as having schizophrenic ten-

dencies when not receiving any medication, developed an acute psychosis. Another patient became stuporous and remained unconscious with levels above 600 micrograms per cubic centimeter. All of these toxic reactions cleared completely when the salicylate level fell below 500 micrograms per cubic centimeter.

3. Evaluation of Results.—Before attempting to appraise the value of salicylate therapy, it is essential to consider the criteria employed to establish the presence and subsidence of rheumatic activity. Unfortunately, there is no simple or specific test which has been shown to measure accurately the degree of rheumatic activity. Local and systemic manifestations of rheumatic activity are not a reliable criterion. Thus, fever, pain, swelling and redness of the joints disappear within twenty-four to forty-eight hours after the beginning of the administration of even small doses of salicylate, although rheumatic activity persists and, indeed, if salicylate therapy is then stopped, all symptoms of acute rheumatic fever reappear. Clinical signs of cardiac involvement such as pericardial friction rub and gallop rhythm are seen in only a few cases, are impossible to quantitate and are known to disappear while rheumatic activity is still present.

The leukocyte count is not elevated in every case and, when it is elevated, may return to normal within four to five days. The antistreptolysin titer is not elevated in every case and does not parallel the degree or duration of rheumatic activity. Electrocardiographic changes are not present in all cases and occasionally are permanent.

The erythrocyte sedimentation rate is the best available criterion with which to follow the course of an attack of acute rheumatic fever and detect rheumatic activity. It is probable that there are patients with rheumatic activity who have a normal erythrocyte sedimentation rate. All the cases that were studied had an elevated erythrocyte sedimentation rate initially. Likewise, it seems possible that the rheumatic activity may subside before the return of the erythrocyte sedimentation rate to a normal value. Therefore the use of the erythrocyte sedimentation rate as the criterion of rheumatic activity might have led us to test our method of therapy in patients in whom rheumatic activity had in reality already subsided. This objection does not, however, seem valid in our cases, because all of the patients studied had, in addition to a high erythrocyte sedimentation rate, one or several other manifestations of rheumatic activity. A very pertinent objection to the use of the erythrocyte sedimentation rate as a criterion is the fact that it is a nonspecific test and can be modified by many causes. Whereas this is undoubtedly true, complicating conditions apparently did not modify the erythrocyte sedimentation rate in this study, in which careful search was made for them. For these various reasons it seemed reasonable to consider the erythrocyte sedimentation rate as a reliable criterion of rheumatic activity with the qualifications mentioned and to use it to follow the course of the disease.

The question whether adequate salicylate therapy shortens the course of an attack of acute rheumatic fever can be determined only by comparing a group of patients adequately treated with a control group. The adequately treated group consists of 21 patients (23 attacks). Our control group consists of 19 patients (19 attacks). Nine of these were patients under our own observation and were not adequately treated for various reasons. In 2 of these 9 patients optimal

levels were never reached; in the other 7 patients optimal levels were obtained only for short periods. The remaining 10 patients of the control group had acute rheumatic fever and were admitted to the Presbyterian Hospital in 1943; none of these patients received consistently more than 3.6 Gm. per day of sodium salicylate and most of them received equal doses of sodium bicarbonate. Although salicylate levels were not determined, it can safely be assumed from what we observed in patients receiving similar doses and on whom we determined salicylate levels, that optimal levels were never reached.

In analyzing the results obtained, one must bear in mind that there are several known factors other than drug treatment which might modify the course of acute rheumatic fever and which might have masked the possible efficacy of adequate salicylate therapy. These factors are (1) the age of the patient, (2) the number of previous attacks of rheumatic fever, (3) the existence of previous rheumatic cardiac involvement, (4) the existence of cardiac involvement during the attack studied, (5) the duration of the attack before therapy is instituted and (6) the possibility of yearly variations in the intensity of the disease.

Comparing the adequately treated and the control groups and taking the age of 13 as the end of childhood, there are in the adequately treated group 20 adults and 1 child, and in the control group 15 adults and 4 children. In the adequately treated group, 13 patients had had a previous attack of rheumatic fever and 10 patients in the control group had had a previous attack. In the adequately treated group 8 patients and in the control group 7 patients had had previous rheumatic cardiac involvement. Thirteen patients in the adequately treated group and 10 patients in the control group had cardiac involvement during the attacks of rheumatic fever that were studied. The duration of the attacks before therapy was instituted is essentially the same in the control group and in the adequately treated group. All patients in both groups were treated within two months of the onset of the disease, with the exception of 1 patient of the control group who had had symptoms for three months and 2 patients in the adequately treated group who had had symptoms of rheumatic fever, 1 for three months and 1 for four and one-half months. Whereas fluctuations in the severity of the disease are believed to exist from year to year, these would hardly appear to be of sufficient significance to vitiate the results.

Figure 3 shows the variation of the erythrocyte sedimentation rate in the group of adequately treated patients over a period of sixty days and figure 4 shows the variation in the erythrocyte sedimentation rate in the control group over the same period of time. The accompanying table summarizes the results obtained in the two groups.

At the end of two weeks the erythrocyte sedimentation rate was still above 20 in all cases of the control group and in 22 out of the 23 attacks of the adequately treated group. At the end of three weeks the erythrocyte sedimentation rate was still above 20 in 16 cases of the adequately treated group and in 16 cases of the control group. At the end of four weeks the erythrocyte sedimentation rate was above 20 in 13 cases of the adequately treated group and in 12 cases of the control group. At the end of five weeks the erythrocyte sedimentation rate was still above 20 in 10 cases of the adequately treated group and in 8 cases of the control

group At the end of six weeks the erythrocyte sedimentation rate was still above 20 in 6 cases of the adequately treated group and in 4 cases of the control group Evidently, when the results obtained in a group of patients who receive adequate salicylate therapy are compared with the results obtained in a group of patients

onset of their symptoms It is worthy of note, however, that 4 out of these 5 responded promptly and the erythrocyte sedimentation rate fell below 20 within two to three weeks

SUMMARY AND CONCLUSIONS

1 In a series of patients with acute rheumatic fever, optimal serum salicylate levels (350 to 500 micrograms per cubic centimeter) were established promptly Such levels were maintained in most cases until the erythrocyte sedimentation rate fell and remained below 20 for two weeks Such therapy is referred to as adequate salicylate therapy.

2 To achieve optimal levels promptly, oral intravenous and combined routes of administration were used As a result of the study of the first cases treated, oral administration was used exclusively in most cases Doses of sodium salicylate twice the maintenance dose were given every four hours for the first twelve hours, then the maintenance dose was given and adjusted according to the levels obtained The maintenance dose ranged between 0.9 and 1.8 Gm every four hours day and night and was roughly computed from the weight of the patient The use of enteric coated sodium salicylate tablets prevented in most cases the vomiting which so frequently follows the administration of large doses of salicylate

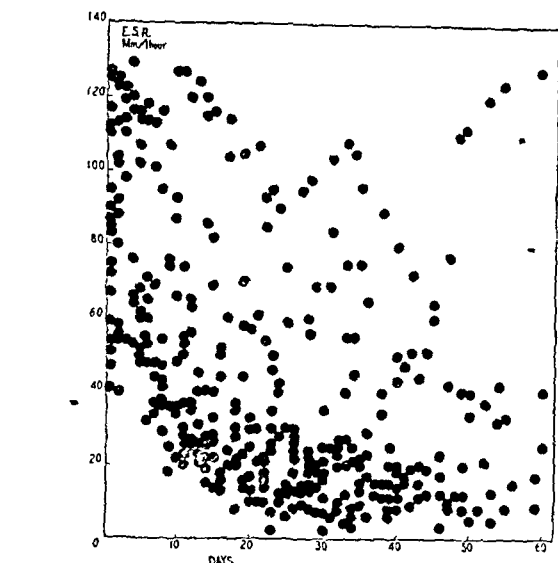


Fig. 3—Variations of the erythrocyte sedimentation rate over a period of sixty days in the group of a adequately treated patients Time in days

in whom optimal serum salicylate levels were never reached or, when reached, were maintained for very short periods, it is obvious that adequate therapy does not shorten the duration of an attack of acute rheumatic fever However, it is possible that adequate salicylate

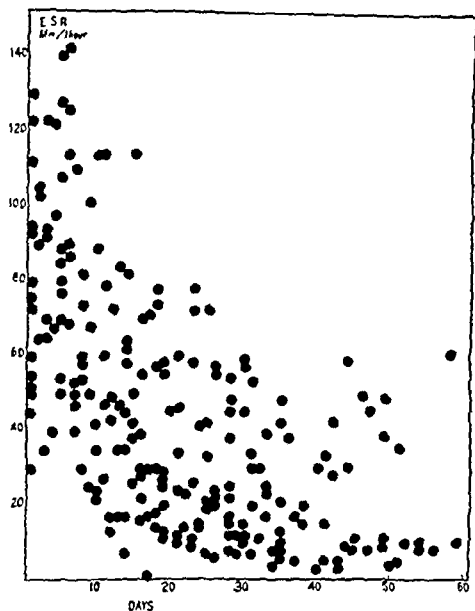


Fig. 4—Variations of the erythrocyte sedimentation rate over a period of sixty days in the control group of patients Time in days

therapy instituted within a few days of the onset of rheumatic fever might have proved efficacious in shortening the course of the disease This cannot be determined from our study because only 5 patients (5 attacks) out of the 21 patients (23 attacks) in the adequately treated group were treated within one week of the

Number of Patients Whose Erythrocyte Sedimentation Rate Has Still Above 20 Mm per Hour in (1) the Control Group and (2) the Adequately Treated Group After Two, Three, Four, Five and Six Weeks of Hospital Stay

	2 Wks	3 Wks	4 Wks	5 Wks	6 Wks
Control group (19 patients, 19 attacks)	13	10	11	8	4
Adequately treated group (21 patients, 23 attacks)	16	1	10	0	0

3 The course of an attack of acute rheumatic fever was compared in two comparable groups of patients The control group (19 patients, 19 attacks) consisted of 10 patients who received such small doses of acetylsalicylic acid that from our experience it can be safely assumed that their blood salicylate level although not determined, never reached optimal values, and 9 patients in whom optimal levels were never reached or reached only for short periods The second group (21 patients, 23 attacks) received adequate salicylate therapy

4 The course of an attack of acute rheumatic fever is not shortened by adequate salicylate therapy It is possible, however, that the course of the attack might be shortened by early institution of adequate salicylate therapy, i. e. within one week of the onset of symptoms of acute rheumatic fever

Yellow Fever—Amongst human infectious diseases only plague can rival yellow fever in its influence on human history and in the sinister impression it has made on the human mind For three centuries it was persistently associated with the slave trade between West Africa and the Caribbean region and it played probably a greater role than any other factor in determining the course of war and piracy in the West Indies during the eighteenth and nineteenth centuries Yellow fever was notoriously a disease of tropical ports and of the ships particularly slave ships, that visited them The two famous literary legends of the Flying Dutchman and the Ancient Mariner both reflect stories of ships stricken with the disease—Burnet, Frank MacFarlane Virus as Organism Cambridge Mass Harvard University Press 1945

EVALUATION OF PENICILLIN IN
GONORRHEA TREATMENT
AND CONTROL

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Our purpose in this article is to evaluate the role of penicillin in the treatment and control of gonorrhea. Our results do not justify the prevailing optimism held by the public and many of the medical profession as to the efficacy of penicillin as an easy, infallible cure of gonorrhea. Some investigators have reported from 95 to 100 per cent cures with varying doses of penicillin.¹ The full benefits of penicillin therapy are not achieved unless a careful search is made for patients who still harbor the disease. Penicillin will cure most cases of gonorrhea, but cure is not necessarily accomplished by the first course of the drug or by penicillin alone. Supportive treatment such as pyrotherapy and the sulfonamides is necessary at times even with repeated courses of penicillin. It is in the interest of public health that the limitations of the drug should be well understood.

Some workers have implied that penicillin-treated gonorrhea patients need only a brief observation period or have intimated that an observation period is unnecessary.² One investigator intimated that all failures can be determined by the presence of a urethral discharge.³ It has been reported also that gonococcal cultures are unnecessary in the follow-up of penicillin-treated gonorrhea patients and that cure may be based on cessation of clinical symptoms.⁴ Others have indicated a need for a greater period of observation.⁵ Our statistics indicate that an important percentage of patients do fail on the initial and even subsequent courses of penicillin and that these failures are frequent enough

to warrant diligent search for gonococci following such medication; otherwise we shall produce carriers unaware of their infectiousness. The profession and the public should be aware that the absence of clinical symptoms is not satisfactory proof of cure.

This report deals with a comparison between a brief (eight days) observation period under hospital conditions and a longer (nine weeks) observation under clinic conditions. It includes a review of the records of patients treated with an initial course of 200,000 units of penicillin at the San Francisco United States Marine Hospital and at the San Francisco City Clinic from Aug. 23, 1944 to April 20, 1945. This amount of penicillin was used because a review of previous records at the City Clinic⁶ showed that a smaller amount of penicillin was not as therapeutically efficacious as 200,000 units, and a greater amount of penicillin used at the Marine Hospital indicated no more promising results than the use of 200,000 units. It is our purpose to evaluate the records of those patients treated with 200,000 units of penicillin to determine the failure rate of this type of medication to establish the minimum observation period which is commensurate with adequate public health safeguards and generally practicable to the average treatment agency, and to contemplate the place that penicillin is likely to play in the public health control of gonorrhea.

EXAMINATION AND TREATMENT

The male patients were diagnosed by the finding of gonococci by spread or culture, or both, in the urethral discharge. If the urethral discharge was not present, or if gonococci were not found in the discharge, the demonstration of gonococci in the culture of the prostatic fluid was the determining factor. Female patients were diagnosed by a finding of gonococci by the spread or culture method in material secured from the urethra and cervix. The laboratory work was performed in the laboratories of the United States Marine Hospital or the San Francisco City Clinic.

The prostatic fluid material to be examined for culture at the Marine Hospital was secured by prostatic massage and the expressed secretion was collected directly on the Petri dish containing the culture medium. This preparation was placed in the incubator within a maximum period of fifteen minutes. This procedure was followed both for diagnostic cultures and for tests of cure. The material to be examined for culture at the City Clinic was secured on a sterile cotton-tipped applicator and was placed in 0.5 to 1.0 cc. of nutrient broth and refrigerated at 4 to 8 C. with a delay of not more than two or three minutes. The preparation was streaked on culture plates within a period of one to three hours and placed in the incubator. All culture plates were incubated forty-eight hours at 35 to 36 C. in a moist atmosphere of approximately 8 per cent carbon dioxide tension. Following this the plate was flooded with p-amino-dimethylaniline monohydrochloride. Oxidase-positive colonies were examined morphologically and tinctorially for gonococci.

The City Clinic laboratory performed 325 sugar fermentation tests, all of which confirmed the positive culture findings. The hospital laboratory obtained the same results on 25 positive cultures. Because of the complete confirmation of this number of routine positive gonococcal cultures, which included positive cultures for diagnosis and for tests of cure, we do not

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6. Koch, R. A.: Significance of Penicillin in the Treatment of Gonorrhea and in Venereal Disease Control, *Stanford M. Bull.* **3**:81 (May) 1945.

feel it necessary to confirm all positive cultures by the sugar fermentation test. The nutrient broth used was Difco proteose-peptone No. 3, slightly enriched with glucose and diluted with an equal amount of ascitic fluid. The plate medium was composed of one third Difco proteose-peptone agar No. 3, one third Difco hemoglobin solution and one third sterile ascitic fluid. Tyrothricin in a dilution of 1:25,000 was employed as an inhibiting factor for saprophytic organisms in this medium.

It is of interest to point out that the hospital laboratory found less saprophytic organisms present on plates when the prostatic fluid was massaged directly onto the culture medium than when the material was first secured on a sterile cotton-tipped applicator.

Penicillin in isotonic solution of sodium chloride was administered intramuscularly, 80,000 units being administered on the first injection and 40,000 units being administered on each of the three subsequent injections at three hour intervals. The solution of penicillin was prepared on the day of treatment and refrigerated throughout. During the initial course of penicillin therapy no other treatment was given. Most of the patients treated at the Marine Hospital had no previous

TABLE 1.—Results of the Administration of an Initial Course of 200,000 Units of Penicillin to 485 Patients by Sex; 269 Hospitalized at the San Francisco United States Marine Hospital and 216 Outpatients at the San Francisco City Clinic

Result of Treatment	U. S. Marine Hospital (S. F.) (Hospitalized Patients)		San Francisco City Clinic (Outpatients)					
	Male		Male		Female		Total	
	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent	Num-ber	Per Cent
Failed *	31	33	17	35	17	36	31	36
Cured †	235	87	93	85	89	84	182	84
Total	269	100	110	100	106	100	216	100

* Demonstrated by positive culture.

† According to our criterion of cure.

sulfonamide medication, while the majority of the patients who were treated at the City Clinic had received one or more courses of sulfathiazole or sulfadiazine. All patients had a positive spread or culture prior to penicillin medication.

The minimum criterion of cure on all patients at the Marine Hospital was two consecutive negative cultures secured by prostatic massage, the first one being taken at least forty-eight hours and the second being taken at least ninety-six hours after medication was completed. In addition the patient had a provocative urethral sound passed, usually size 24 to 26 F., within twenty-four hours after treatment and before the first culture. Wherever possible a third culture was taken at the end of six days. Except in 2 instances all these patients were confined to the hospital under ambulatory conditions during their entire period of observation.

The minimum criterion of cure on all patients at the City Clinic was three consecutive negative cultures secured by prostatic massage in the male and material expressed from the urethra and cervix in the female taken over a four week period with a minimum of one week between cultures. No provocative sounds were passed on these patients. Weekly cultures for the first four weeks, a fifth culture at the end of eight weeks and a sixth culture at the end of twelve weeks of observation were taken wherever possible. All these patients were observed under clinic conditions.

STATISTICAL ANALYSIS

This report concerns 485 patients who were treated with an initial course of 200,000 units of penicillin. The report does not include 103 patients results of whose treatment are unknown. The results of treatment of these patients are unknown since they transferred or lapsed prior to meeting the minimum criterion of cure established.

At the Marine Hospital a failure was determined if a positive culture or spread was obtained while the patient was hospitalized. Two of the patients who were reported as having failed were found to have positive cultures on their return checkup at the hospital. Since these patients had no clinical symptoms of reinfection and denied sexual intercourse, they were considered to be failures. At the City Clinic a failure was determined if a positive culture was obtained following penicillin therapy and there was no clinical evidence of new infection.

We considered a reinfection to have occurred in those male patients who developed a profuse urethral discharge following an asymptomatic state after penicillin therapy. We did not consider that a reinfection had occurred in those patients who had a slight mucoid moisture immediately following therapy. It was not possible to establish such a satisfactory criterion for female patients, because the presence of a cervical discharge is not clinical proof of a new infection. Comparison shows that the failure rate by sex is not significantly different; consequently an evaluation of the failure rate in the male is probably applicable to that in the female. We are aware that this is contrary to the general opinion, although one of us has reported elsewhere⁶ a series which appears confirmatory of similar rate of failure in the sexes.

Table 1 gives the results of treatment with one course of 200,000 units of penicillin of 269 hospitalized cases at the Marine Hospital and of 216 outpatients at the City Clinic. Thirty-four (13 per cent) of these hospitalized patients failed to respond to treatment and 235 (87 per cent) were cured.

Of the 216 patients treated at the City Clinic 34 (16 per cent) were failures and 182 (84 per cent) were cured. Although these were outpatients with opportunity for sexual exposure, the failures were not considered to be reinfections since there were no clinical symptoms, as defined, indicative of new infection in the male and no history of sexual exposure except for 4 male patients with profuse urethral discharges following an asymptomatic state after penicillin therapy who were possible reinfections. Two males and 4 females were possible exceptions also because they admitted sexual exposure, but reinfection was not substantiated by clinical symptoms in the male cases.

The failure rate for the patients treated at the Marine Hospital is lower than would probably be found if the observation period was extended to include a period greater than one week, as at the City Clinic we found many failures after one week of observation. However, keeping these patients for longer periods of observation is not practical. It is possible that the passage of the provocative sound led to the finding of failures sooner than they might ordinarily have occurred.

An evaluation of the failures occurring at the Marine Hospital and at the City Clinic by observation period and by sequence of culture showing failure is presented in table 2. The observation period in this table is defined as the period from the administration of the penicillin to the taking of the first positive culture. Of

the 34 failures at the Marine Hospital. 13 failures (39 per cent) were found after an observation period of five days or longer with positivity occurring on an average on the second culture. Positive cultures were obtained on the remaining 21 failures (61 per cent) from one to four days following treatment.

At the City Clinic 13 failures (38 per cent) were detected by the first week of observation. Twenty-one failures (62 per cent) were detected after one to four weeks of observation, with positivity occurring on an average on the second culture. Thirteen of the failures (38 per cent) had positive cultures after five or more weeks of negative observation.

Table 3 is a presentation of the average number of negative cultures obtained, by observation period, for 235 cured cases at the Marine Hospital and 182 cured cases at the City Clinic. The period of observation is that period from the day of treatment with penicillin until the day on which the last culture was taken. It is to be noted that 206 cured cases (88 per cent) at the Marine Hospital were observed for a period of six days or longer, with an average of three consecutive negative cultures obtained.

At the City Clinic 117 cured cases (64 per cent) were observed for a period of eight weeks or more, with an average of five consecutive negative cultures obtained.

It is of interest to discuss the treatment results of those patients who failed to respond satisfactorily to an initial course of 200,000 units of penicillin. Of the 34 failures occurring at the Marine Hospital, 30 patients were retreated with a second course of 200,000 units of penicillin. Twenty-four of these cases fulfilled the minimum criterion of cure, as defined; 6 failed. The failures were retreated with a third course of 200,000 units of penicillin; 4 were cured with penicillin alone, 1 was cured with penicillin and sulfadiazine and 1 failed. This failure was treated with a fourth course of 200,000

sulfathiazole; the remaining 4 failures were not given further treatment at the hospital.

Of the total 34 patients who failed at the City Clinic, 27 were given a second course of 200,000 units of penicillin. Of this number 8 failed, 10 were cured and the results of 9 are unknown. Five patients were given a third course of 200,000 units. Of these 2 failed, 1 was cured and the results of the remaining 3 are unknown.

TABLE 3.—Average Number of Negative Cultures Obtained, by Observation Period, for 235 Cured Cases at the San Francisco United States Marine Hospital and for 182 Cured Cases at the San Francisco City Clinic

United States Marine Hospital (S. F.) (Hospitalized Patients)				San Francisco City Clinic (Outpatients)			
Observation Period, Days	Average Number of Negative Cultures	Cases		Observation Period, Weeks	Average Number of Negative Cultures	Cases	
		Number	Per Cent			Number	Per Cent
3	2	3	2	4	4	26	14
4	2	15	6	5	4	22	12
5	3	9	4	6	4	12	7
6	3	59	42	7	4	5	3
7	3	66	28	8	5	13	7
8+	3	41	18	9+	5	104	57
Total.....		235	100	Total.....		182	100

One patient who was given a third course was treated simultaneously with artificial fever therapy and failed. This patient was retreated with 400,000 units and transferred. The results of treatment that were unknown included those patients who lapsed with incomplete tests of cure, those who were transferred prior to completion of tests of cure or those patients who were still under observation. Of the 27 failures occurring on the initial course of 200,000 units, 11 patients were apparently cured by additional treatment with penicillin alone. Of those patients about whom we have information, none were found to resist all treatment completely.

COMMENT

A review of our statistical findings indicates a failure rate of sufficient import to justify an observation period after treatment. We are not prepared to state the exact length of this observation period. It cannot be longer than the availability of hospital beds and other factors permit, but it should be long enough to meet satisfactory criteria of cure. The fact that only 10 (29 per cent) of the failures occurred on the first culture over an average observation period of one to two days indicates that the taking of one follow-up culture is not conclusive or adequate evidence of cure. It is important in the analysis of the Marine Hospital failures to note that in all except 2 cases reinfection was improbable.

In view of the similarity of failure rate at the two treatment agencies, it would be indicated that the failure rate at the City Clinic was not to a large degree due to reinfections. However, a review of the period of observation of patients at the City Clinic would indicate the desirability of maintaining an observation period beyond that of the Marine Hospital if this is commensurate with the operation of the treatment agencies. It is to be noted that 21 failures, or 62 per cent of all the failures occurring at the City Clinic, were discovered after the first week. It is probable that the earlier detection of failures at the Marine Hospital was due to the passage of sounds.

The trauma to the congested mucosa caused by this procedure possibly brought organisms to the surface

TABLE 2.—Evaluation of 34 Failures Occurring at the San Francisco United States Marine Hospital and of 34 Failures Occurring at the San Francisco City Clinic, by Observation Period and by Sequence of Culture Showing Failure

United States Marine Hospital (S. F.) (Hospitalized Patients)				San Francisco City Clinic (Outpatients)			
Observation Period, Days	Average Sequence of Culture Showing Failure	Failures		Observation Period, Weeks	Average Sequence of Culture Showing Failure	Failures	
		Num- ber	Per Cent			Num- ber	Per Cent
1-2	1	10	29	1	1	15	38
3-4	2	11	32	2	2	2	6
5-6	2	5	15	3	2	2	6
7+	3	8	24	4	3	4	12
				5-8	2	4	12
				9+	4	9	26
Total.....		34	100	Total.....		34	100

units of penicillin with typhoid pyrotherapy and failed. He was then cured on the fifth course of 200,000 units of penicillin with sulfathiazole and artificial pyrotherapy.

Four of the original 30 retreated failures were given a second course of penicillin with thyroid pyrotherapy or artificial fever therapy simultaneously, which resulted in 2 failures and 2 cures. One patient was given artificial pyrotherapy simultaneously with the third course of penicillin and was cured. Of the 34 failures occurring on the initial course of 200,000 units, 30 patients were apparently cured by subsequent treatment with penicillin either alone or with concurrent pyrotherapy and

which would otherwise have remained dormant. There is reasonable historical evidence indicating that these dormant organisms can produce a carrier state and subsequently lead to an activation of clinical symptoms.⁷ We have further evidence for our belief that it is possible to have prostatic,⁸ cervical and urethral foci of walled off organisms that may later break down and produce a recurrence or carrier state. That gonococci may be dormant over a long period of time is indicated by 3 urologic cases with a history of urethral infection suggestive of gonorrhea twenty to forty years previously with no interval activation of symptoms who have had activation of their symptoms following urethral instrumentation. These patients vary in age from 60 to 75 years. They claim no sexual contact for a period range of ten to fifteen years.

It is important to point out to those who would be critical of the passage of urethral sounds in the presence of penicillin-treated acute gonorrhea that in over 700 patients we have had no complications resulting from this procedure. These sounds were passed within the first twenty-four hours following completion of the penicillin therapy, and none were passed sooner than twelve hours thereafter.

Five penicillin-treated patients at the Marine Hospital, not included in the present series and who have shown resistance to treatment, are worthy of mention. One patient received three separate courses of 100,000 units of penicillin but still showed positive spreads and cultures. He then received 200,000 units of penicillin with persistent positive spreads and a final course of 200,000 units of penicillin along with typhoid pyrotherapy before two consecutive negative cultures could be obtained. Four other similar cases were treated; 1 of these required 1,600,000 units of penicillin simultaneously with sulfonamides and artificial fever therapy in order to effect a cure. In our experience patients with gonococcal epididymitis or prostatitis respond as well to penicillin therapy as those without such complications.

We believe that a plan of observation depending on criteria of cure in which the patient is instructed to return for examination only with recurrence of clinical symptoms following penicillin therapy or a plan of securing only one post-treatment gonococcus culture is inconsistent with adequate public health control.

An interpretation of our statistical results would indicate the importance of obtaining three consecutive negative cultures over a four week observation period. However, as this type of observation is not practicable to all treatment agencies, we recommend an irreducible minimum criterion of three cultures over a one week period. We feel that this short observation period should be used only when the longer is impossible. Where practicable we believe it is still desirable to maintain the patient on a three months observation period during which time the patient has had a minimum of six consecutive negative cultures. A period longer than this is inconsistent with the law of diminishing returns.

Penicillin is unquestionably the most valuable therapeutic agent that has thus far been available to the medical profession in the treatment of gonorrhea. If the

limitations of this therapy are adequately appraised and if the doctor is aware of the necessity of a careful observation period based on the use of adequately secured, prepared and examined cultures, penicillin should contribute to the reduction of the incidence of gonorrhea.

It should be realized that the control of gonorrhea is not in the hands of the medical profession alone. The social factors related to the spread of the disease are beyond the scope of the profession. The control of those social factors that are concerned with the dissemination of venereal disease must be assumed by all of the community agencies responsible, namely the parents, the church, the state, the school and all other agencies which have a role in shaping the social environment of youth.

ADDENDUM

This article was submitted to the Surgeon General of the United States Public Health Service for approval for publication. It was returned approved with some pertinent comments:

1. It was suggested that perhaps our cure rate would be improved if penicillin was administered at two hour intervals. One of us is now administering the same total dosage at two hour intervals (200,000 units); another of us is trying an initial total dosage of 300,000 units at three hour intervals. We have no completed statistics on the results on the two hour interval cases, and we do not wish to draw final conclusions from a small series, but with the use of 300,000 units at the Marine Hospital, we have encountered a failure rate of 13 per cent.

2. It is hoped that other investigators in this field will repeat our work of sugar fermentation tests. We are continuing these tests in both our clinics on cultures used for diagnosis and as tests of cure.

3. The comments also pointed out that an objective view should be taken of hospitalization for the treatment of gonorrhea. When we can assure ourselves that our cure rate is 95 per cent or better, we feel that hospitalization for gonorrhea is not justified.

4. The comments also suggested that trauma produced by sounds might interfere with phagocytosis and produce a relapse. We believe that, because of the fact that failures at the City Clinic, where sounds were not passed, and the Marine Hospital, where sounds were passed, were so statistically comparable, these figures invalidate the suggested hazard of passing sounds.

The comment on this same subject pointed out that passage of sounds by a trained urologist in the hospital would give a much larger margin of safety than a similar procedure in the hands of a general practitioner; with this opinion we are in complete agreement.

SUMMARY

1. Of 485 gonorrhea patients treated with an initial course of 200,000 units of penicillin, 68 (14 per cent) were not cured.

2. Hospitalization of gonorrhea patients does not appear to affect the failure rate. This would indicate that failures occurring in outpatients are probably not reinfections.

3. Minimum criteria of cure, including multiple cultures in penicillin-treated gonorrhea patients, are indispensable to the public health control of the disease.

4. We cannot definitely report a case of complete penicillin resistance; however, 1 in 7 failed on the first course of treatment, many of the retreated ones

7. Koch, R. A.; Mathis, E. N., and Geiger, J. C.: Criteria of Cure in Gonorrhea. *Ven. Dis. Inform.* 25:35 (Feb.) 1944. Riba, L. W.; Schmidlapp, C. J., and Bosworth, N. L.: Use of Penicillin for Gonorrhea Resistant to Sulfonamide Compounds. *War Med.* 6:72 (Aug.) 1944.
8. Cohn, Alfred, and Borris, A. K.: Penicillin Therapy of Sulfonamide Resistant Gonococcal Infections and Associated Complications in the Male. *Am. J. Syph., Gonorr. & Ven. Dis.* 29:334 (May) 1945.

required more than one repeat course, and in some of them sulfonamides and pyrotherapy were administered simultaneously.

5. We have been unable to confirm the necessity for the usually accepted practice of differentiating gonococci from other members of the *Neisseria* family by sugar fermentation tests; 350 laboratory observations, although not conclusive evidence, constitute a not inconsiderable group on which to base an opinion.

6. In the control of gonorrhea the medical profession must be aware of the limitations of penicillin therapy, the possibility of producing a carrier state and the social factors related to the spread of the disease.

TULAREMIA

ANALYSIS OF 225 CASES

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AND

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NEW ORLEANS

In the period from Jan. 1, 1928 to July 1, 1944, 225 cases of tularemia were observed in the Charity Hospital of Louisiana at New Orleans. As this is a large series of cases to be studied in a single institution, analysis of these cases from the clinical point of view seems worth while. We shall not attempt an exhaustive survey of the literature, as it is believed that the size of this group of cases will provide a representative sampling of the difficulties in diagnosis and treatment of tularemia infections in general.

It is doubtful whether tularemia is a growing disease in incidence as well as in morbidity and mortality. The apparent increase in some sections of the country is probably based on a more general awareness and increasing recognition of the disease. The diagnosis of tularemia is to be considered in any acute febrile illness, and the remarkable similarity of tularemia infections to other febrile diseases, such as influenza, psittacosis, atypical pneumonia, brucellosis, typhoid, tuberculosis, infectious mononucleosis, leukemias, lymphomas, fungous infections of diverse types, and various diseases accompanied by septicemia and bacteremia, adds to the difficulty and frequently renders impossible the diagnosis based on clinical data. Consideration of the clinical features of our group of 225 cases will emphasize the variety of expressions of tularemia infections.

CLINICAL FEATURES

Of the 225 cases of tularemia available for study, 181 were ulceroglandular, 7 were oculoglandular, 14 were of the typhoidal form and 23 were apparently of the glandular variety of the disease. In the selection of these cases the following criteria were considered acceptable for confirmation of the diagnosis of tularemia: (1) significant or rising agglutinin titer, (2) positive blood culture, (3) aspiration biopsy and animal inoculation and (4) autopsy examination with animal inoculation.

Incidence.—As seen in chart 1, the highest incidence of tularemia at Charity Hospital occurred in 1940, with the next greatest frequency in 1935. We have no adequate explanation for the variations in incidence from year to year, especially in view of the fact

that the rural population in Louisiana is fairly stable and the number of annual admissions to Charity Hospital during the same period has steadily increased. The present downward trend is gratifying and may be evidence both of greater knowledge of tularemia among the lay population with resultant increase in prophylaxis and also of a considerable reduction in hunting during recent seasons.

As one would expect, the highest incidence (chart 2) reaches its peak in December, which is at the height of the hunting season. A few cases of tularemia are seen, however, at all times of the year.

Racial Distribution.—Of the 225 patients, 132 were white and 93 were Negroes. This is proportional to the admissions of white and colored patients during the same period and does not, therefore, reveal any significant differences in racial susceptibility to the disease.

Sex.—There were 84 white male patients, 50 colored males, 48 white females and 43 colored females. These data did not show any significant differences in susceptibility based on sex. The slight preponderance of male patients may be readily explained on the basis of contacts with the animal reservoirs of the disease.

Age.—The age factor too is related to the contacts of the patient group. The average age for our group

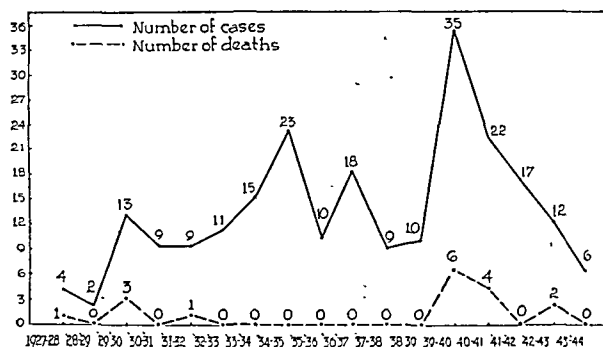


Chart 1.—Incidence of 225 cases of tularemia according to years.

of patients was 34.9 years. The youngest patient was a white girl of the age of 3 years who was bitten by a captive wild rabbit. The oldest patient in this series was a colored man of 73.

Contacts.—The wide variety of animal contacts capable of infecting man with *Bacterium tularensis* (*Pasteurella tularensis*), the organism which causes tularemia, is not appreciated as highly as it should be. In our group 176 patients gave a history of definite contact with rabbits, 6 to ticks, 3 to squirrels and 1 each to mink, raccoon, opossum, dog, cat and rat. In 34 instances a definite contact was not established.

Whereas it is estimated¹ that about 90 per cent of human infections with tularemia result from contact with the tissues, body fluids or pelts of the cottontail rabbit, jack rabbit and snowshoe hare, other sources of infection reported in the literature include an imposing list of rodents, gallinaceous birds and other animals, such as the dog, cat, coyote, fox, hog and sheep. Infection by ingestion of insufficiently cooked rabbit meat has been reported occasionally. Transmission by the bite of the horse fly and deer fly has occurred in the Western states. Ticks may transmit the disease to man in any section of the country. In the Western states the wood tick *Dermacentor andersoni* and the

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1. Feshay, L.: Tularemia, in Bercovitz, Z. T.: Clinical Tropical Medicine, New York, Paul B. Hoeber, Inc., 1944.

dog tick *Dermacentor occidentalis* are the chief vectors; elsewhere the dog tick *Dermacentor variabilis* assumes importance. Ticks are of particular interest in that the primary lesion of tularemia following the bite of the tick may occur on unexposed portions of the body. Outbreaks of tularemia following the ingestion of contaminated water have occurred in Russia. Thus it is evident that historical inquiry concerning exposure to animal contacts must consider a wide variety of possibilities.

Incubation Period.—The incubation period for the entire group usually varied from two to six days (average 4.6 days) with the shortest period being one day and the longest fifteen days.

Primary Lesion.—A primary lesion of tularemia developed in 188 cases. Seven of these were examples of ophthalmic tularemia. The lesions were located on the hands or fingers in 175 instances. Of these, 91 were on the left hand and 82 on the right hand, and in 2 patients a finger on each hand was involved. Four patients presented multiple lesions of one hand or fingers. The largest number of primary lesions to occur in any 1 case was four. A white girl 4 years of age was found to have a primary lesion on her forehead. Lesions of the right shoulder, right axilla, right

ment; hence it is probable that the primary lesion was overlooked in these patients.

The location of the regional lymphadenopathy was not always diagnostic. One female patient without evidences of a primary lesion presented a nodular type of lymphangitis which extended from the axillary nodes along the outer border of the pectoralis muscle to involve the breast. A biopsy was taken because malignancy was suspected. One white male presented lymph node enlargement in the left supraclavicular fossa which was thought at first to be metastatic from a primary malignant growth elsewhere. With the exception of the 7 cases of oculoglandular type of tularemia, cervical lymphadenopathy occurred in only 14 instances. Seventeen patients presenting primary lesions were found to have generalized lymph node enlargement of some degree instead of regional lymphadenopathy. Of these, 7 patients had a palpable spleen. In passing, it may be said, however, that 6 of 14 patients with typhoidal tularemia had palpable spleens as compared to 3 of 23 cases of the glandular type of the disease.

In 47 cases (22.2 per cent) suppuration of the glands occurred and the glands either ruptured spontaneously or were incised after evidences of secondary infection subsided. Data available in 192 instances indicated that the known duration of adenitis varied from seventeen days to two hundred and nineteen days. The average duration of known adenitis for these cases was 46.4 days. No determinations concerning recurrence of lymphadenopathy are permissible in view of inadequate observations of the patients following discharge from the hospital.

Subcutaneous Nodules.—Subcutaneous lymphangitic nodules were observed on the hand, forearm or arm of 18 patients (8.0 per cent). They were found on either the anterior or the posterior surface of the arm or forearm along the route of lymphatic drainage toward the involved axillary nodes. These nodules were usually firm, movable and nontender. In a few cases, however, the nodules became attached to the skin and progressed to suppuration. As is characteristic of tularemia, visible lymphangitis between the primary lesion and the regional buboes was noted in only 1 patient, and this was a nodular lymphangitis.

Skin Manifestations.—In 19 instances in this series (8.4 per cent) a skin eruption occurred. In 9 patients the eruption was described as diffuse and papular. In 6 cases, lesions typical of erythema nodosum were widely distributed over the body. Doubt existed as to the etiology of the remaining 4 patients because sulfonamides were being administered when the skin manifestations first became apparent, and in each of these cases the skin eruption subsided within four days after the sulfonamides were discontinued. In the first 15 cases, however, the cutaneous eruption usually appeared during the second or third week of the disease and lasted from a few days to three weeks or more. It was most prominent on the arms and neck, although erythematous macular lesions of the palms of the hands were also frequently present. The cutaneous eruption was usually bilateral and symmetrically distributed.

Herpes labialis was present in 17 cases and was thought to be of no more significance in tularemia than in association with other febrile diseases.

Oculoglandular Type.—This type of tularemia was observed in 7 cases (3.1 per cent) in our series (table 1). Rabbits were the source of contact in 6 instances, while the only history of contact obtained

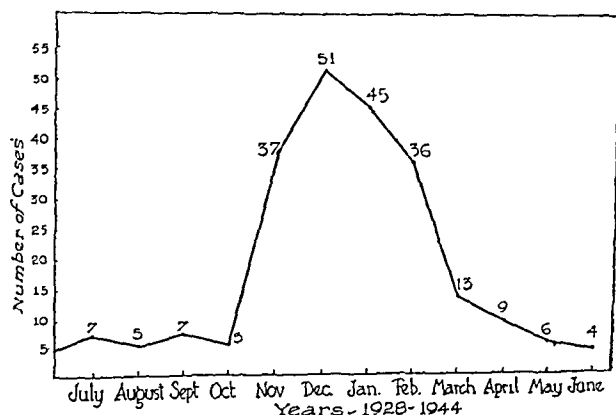


Chart 2.—Seasonal incidence of 225 cases of tularemia.

knee, right elbow and left inguinal region were attributable to tick bites.

The initial lesions usually became noticeable within a few hours in instances in which trauma to the site had occurred. In instances in which a history of previous trauma could not be obtained the primary lesion developed less rapidly, a period as long as seven days being required in a few cases.

Adequate data were available to determine a relatively accurate duration of the primary lesion in 148 cases. The shortest healing time was nine days in 1 case, while a patient presenting an inguinal lesion secondary to a tick bite required one hundred and four days for complete healing. The average duration of the primary lesions was 32.09 days.

Glandular Involvement.—Evidences of lymph node enlargement were manifest in 211 cases. Of these, regional lymphadenopathy secondary to a primary lesion occurred in 181 cases and may therefore be classified as ulceroglandular tularemia. Seven patients presented cervical lymphadenopathy secondary to primary ophthalmic lesions. No evidences of primary lesions could be discovered in the remaining 23 patients. However, 14 of these had unilateral axillary involvement with or without epitrochlear glandular enlarge-

from the remaining patient, a white man 20 years of age, was that of mashing a tick between the finger and the forethumb. No digital lesion developed. Within nine days, however, a severe conjunctivitis with subsequent cervical lymphadenitis developed. One fatality occurred among the clinical forms of oculoglandular tularemia, a colored man aged 35, who died on the fourteenth day of his illness. In the remaining 6 patients who eventually recovered no complicating ocular disturbances were observed during the convalescent period.

Pneumonic Involvement.—Of this series, 30 cases presented evidences of pneumonia, an incidence of 13.33 per cent, while 7 cases showed pleural effusions. Of this group, however, only 21 cases, an incidence of 9.33 per cent, fulfilled the criteria for the diagnosis of tularemic pneumonia. These cases of tularemic pneumonia have been reported elsewhere.²

The only history of contact being that of a bite by his dog, which had recently eaten a squirrel. Survey of the spinal fluid revealed a cloudy fluid, 220 cells, 4 plus globulin, 60 mg. of sugar per hundred cubic centimeters and pressure of 240 mm. of water. Spinal fluid culture and smear were negative. The patient eventually recovered.

Venous Thrombosis.—Venous thromboses were observed in 3 instances. The femoral veins were affected twice and the antecubital vein once. The symptoms and signs did not differ appreciably from those observed in venous thromboses resulting from other causes. Two of these 3 patients eventually recovered.

Associated Nontularemic Conditions.—These are summarized in table 3. All of the patients except 1 with serologic evidences of syphilis had repeated serologic examinations of the blood during hospitalization and none were found to become negative as the tula-

TABLE 1.—Seven Cases of Oculoglandular Tularemia.

Case	Age	Color	Sex	Contact	Incubation Period	Adenitis	Agglutinations	Days of Hospitalization	Complications or Coexisting Disease	Outcome
1	35	C	♂	Rabbit	2 days	Generalized	1:320 on 14th day	Died on 3d day	Pneumonia (tularemic ?)	Died on 14th day; autopsy showed right lobar pneumonia and generalized node enlargement; guinea pig inoculation reproduced lesions in 4 days
2	17	W	♂	Rabbit	6 days	Preauricular, parotid, submaxillary, cervical	Negative on 8th day 1:50 on 12th day 1:200 on 14th day	38	None	Recovery
3	20	W	♂	Mashed tick between fingers	9 days	Preauricular, cervical	1:320 on 15th day 1:640 on 24th day	105	None	Recovery
4	17	C	♂	Rabbits	2 days	Preauricular parotid, cervical	1:320 on 20th day 1:640 on 26th day 1:5,120 on 32d day	Deserted on 14th day	..	No follow-up record
5	25	C	♀	Rabbits	Multiple exposure	Parotid, submaxillary, cervical	Negative on 7th day 1:160 on 14th day 1:640 on 22d day	47	Syphilis, latent	Recovery
6	25	W	♂	Rabbit	5 days	Parotid, preauricular, submaxillary, cervical	1:640 on 23d day	59	None	Recovery
7	25	W	♀	Rabbit	.....	Preauricular, parotid, cervical	Negative on 11th day 1:200 on 17th day	31	None	Recovery

It can be seen from table 2 that the incidence of pneumonia is much greater in the typhoidal type of tularemia than in other types. Twelve of our 21 patients with tularemic pneumonia died, a mortality rate of 57 per cent.

TABLE 2.—Pneumonic Involvement in Various Types of Tularemia

Type	Cases	Number with Pneumonia	Incidence in per cent
Ulcero-glandular.....	121	13	7.1
Oculoglandular.....	7	0	0
Glandular.....	25	0	0
Typhoid.....	14	8	57

Central Nervous System Involvement.—Several instances of stupor, meningismus and other signs of possible central nervous system involvement were noted among our patients. One colored male was found to have tularemic meningitis at autopsy. Another patient, a white boy 10 years of age, developed stupor and stiffness of the neck during the course of his disease.

2. Stuart, B. M., and Pullen, R. L.: Tularemic Pneumonia: Review of American Literature and Report of 15 Additional Cases, *Am. J. M. Sc.*, to be published.

remic infection ran its course. Only 1 of the 5 patients with recognizable heart disease failed to recover, and this patient, a white female, also had tularemic pneumonia and severe diabetes mellitus. Three pregnant women contracted tularemia, 1 at three months, 1 at four months and 1 a week before term. All gave birth to apparently normal children. Two patients with secondary pneumococcal pneumonia died, sputum typing

TABLE 3.—Associated Nontularemic Conditions

Syphilis.....	15
Diabetes mellitus.....	4
Hypertensive heart disease.....	3
Pregnancy.....	3
Chronic pyelonephritis.....	3
Pneumococcal pneumonia.....	2
Arterio-sclerotic heart disease.....	2
Inertive pulmonary tuberculosis.....	2
Chronic glomerulonephritis.....	1
Peudonal ulcer.....	1
Malignant neutropenia.....	1
Sickle cell anemia.....	1
Anemia secondary to <i>Necator americanus</i>	1

for pneumococci disclosing type VIII in 1 instance and type X in the other before death. The other associated diseases apparently failed to influence the course of the tularemic disease or to be affected by it.

LABORATORY DATA

Although the history of animal contact and the clinical picture of the disease process usually permits the presumptive diagnosis of tularemia, laboratory data are necessary for confirmation and in some instances for establishment of the diagnosis.

Blood Changes.—A mild secondary anemia was observed frequently, the red cell count ranging from 3,500,000 to 4,000,000 per cubic millimeter. The average leukocyte count of 159 patients in whom total white blood cell counts were determined was 11,200. The average differential leukocyte count of 149 patients disclosed 70 per cent polymorphonuclear cells, 25 per cent lymphocytes and 5 per cent monocytes. The highest leukocyte count, a value of 90,000, was observed in a colored male who developed typhoidal tularemia twenty-four hours after cleaning rabbits and died thirty-six hours after the onset of the disease. Autopsy revealed no evidences of primary blood disease. The lowest leukocyte count in our series was 2,000, although 4 other patients were found to have white counts of less than 5,000 cells. One of these patients, a colored female, apparently had a malignant neutropenia following sulfonamide therapy.³

Urinalysis.—Excluding those patients found to have chronic renal disease, there were 14 instances of transient albuminuria which cleared as the acute phases of the disease subsided.

Agglutinations.—Specific agglutinins invariably appeared in all of our cases except in 9 instances in which the diagnosis was established by postmortem study, laboratory animals being inoculated in each of these instances. The agglutinins were absent during the first week of the disease but were demonstrated in titers of 1:40 to 1:320 in 213 of 216 cases during the second week. Agglutinins appeared on the fifteenth, eighteenth and twentieth days of illness in the remaining instances. Usually during the third week an abrupt rise in the agglutinin titer was observed, while the maximum titers of 1:1,280 to 1:10,240 were reached during the fifth or sixth week of the disease.

Several patients returned to the hospital because of other illnesses after recovering from tularemia. One patient was found to have an agglutinin titer of 1:320 seven years after recovery.

Blood Cultures.—Routine blood cultures were taken at the onset of the disease in 104 of our series of 225 cases. As the mediums in most instances consisted of plain agar or broth, these cultures were persistently negative. It is regrettable that direct inoculation of the patient's blood on fresh blood-glucose-cystine agar was performed in only 3 instances. In each a growth of *Bacterium tularensis* was obtained during the first ten days of the patient's illness.

Microscopic Examination of Lymph Node Biopsies.—Four patients were subjected to lymph node biopsy before tularemia was suspected. In each instance the examining pathologist suggested the diagnosis from the microscopic appearance of the excised tissue which was subsequently confirmed by positive agglutination tests.

Skin Tests.—Foshay's antiserum was used in performing skin tests in 13 instances. Eleven of these were interpreted as positive or doubtfully positive, while 2 failed to produce any reaction. Three patients developed local necrosis at the site of the cutaneous

injection. The 2 negative reactors were tested on the fourth and seventh days respectively.

Autopsies.—Seventeen patients in our series died of tularemia and 12 of these were submitted to postmortem examinations. Four of the autopsies have been previously reported by other investigators.⁴ In addition to the microscopic examination, the diagnosis of tularemia in these cases may be summarized as follows: 4 were diagnosed by agglutination tests before death, 2 by aspiration of material from the lungs and inoculation into laboratory animals, and 1 by the clinical features of a primary ulcer and regional lymphadenopathy. Patients subjected to autopsy have been summarized in table 4.

In the 5 patients that died and were not submitted to autopsy, the diagnosis of tularemia was confirmed in 4 by demonstrating specific agglutinins in the blood in titers of 1:200 to 1:1,280, while B. tularensis was cultured from the patient's blood of the sixth on a medium of fresh blood-glucose-cystine agar.

COURSE OF TULAREMIA

Treatment.—No specific therapy in our hands has proved to be consistently beneficial in the treatment of tularemia. Specific immune serum, according to Foshay,⁵ is effective in reducing the severity and duration of symptoms, especially when given early in the disease. Sulfonamides⁶ have been utilized as therapeutic agents but Ransmeier⁷ has shown B. tularensis to be resistant to sodium sulfadiazine experimentally in vivo. Heilman⁸ has recently reported an antibiotic substance (streptomycin) to be effective in treating experimental tularemia, an observation which needs further investigation. Little information concerning the effectiveness of penicillin against B. tularensis is available thus far, but it would appear to be of little value.

No therapeutic agent was consistently employed in the treatment of our series of patients. Sulfarsphenamine, neoarsphenamine, roentgen rays, infra-red rays, specific serum, human convalescent serum, acriflavine⁹ and the sulfonamides were all utilized during various intervals as systemic therapeutic agents. A critical analysis of the available records, however, indicates that these various agents had little if any influence on the course of the disease.

The local eye lesions were treated with wet boric acid compresses, strong protein silver, homatropine, hot saline soaks, 5 per cent solution of sulfathiazole and hot applications of half saturated aqueous magnesium sulfate with frequent lavage of the conjunctival sac with warm boric acid-saline solution. This latter form of treatment was apparently as effective as any other available therapeutic regimen.

Other local lesions were treated with 2 per cent saline compresses, boric acid soaks, magnesium sulfate soaks, roentgen rays, infra-red rays, acriflavine, 5 per cent sulfathiazole ointment, weakly saturated solution

4 Weilbaecher, J. O., and Moss, E. S.: The Treatment of Tularemia with the Thiazole Derivatives of Sulfanilamide, New Orleans M. & S. J. **92**: 694-697 (June) 1940. Moss and Weilbaecher.

5 Foshay, L.: Tularemia. A Summary of Certain Aspects of the Disease, Including Methods for Early Diagnosis and the Results of Serum Treatment in 600 Patients, Medicine **19**: 183 (Feb.) 1940.

6 May, L. M.: Late Tularemia Septicemia: Recovery Following Administration of Sulfanilamide Compounds, Ann Int Med **15**: 320-324 (Aug.) 1941. Johnston, J. M.: Uteroglandular and Pulmonary Tularemia Treated with Sulfanilamide, J. A. M. A. **115**: 1360 (Oct. 19) 1940. Richards, G. G.: Tularemia with Pulmonary Complications, Ann Int Med. **17**: 78-82 (July) 1942. Moss and Weilbaecher.⁴ Weilbaecher and Moss.⁴

7 Ransmeier, J. C.: Studies on the Activity of Sodium Sulfadiazine Against *Bacterium Tularensis*, J. Infect Dis. **72**: 77-85 (Jan.-Feb.) 1943.

8 Heilman, F. R.: Streptomycin in the Treatment of Experimental Tularemia, Proc. Staff Meet., Mayo Clin. **19**: 553-559 (Nov. 29) 1944.

9 Loria, F. L.: Treatment of Tularemia with Acriflavine, Am J. M. Sc. **202**: 803-808 (Dec.) 1941.

3 Moss, E. S., and Weilbaecher, J. O.: Recent Advances in the Diagnosis and Treatment of Tularemia, South M. J. **34**: 512-516 (May) 1941.

of commercial urea and occasionally incision. Wet boric acid dressings or compresses saturated with magnesium sulfate solution seems to be the treatment of choice for local lesions.

The involved lymph nodes were seldom incised unless definite evidence of suppuration was present. Warm wet soaks of boric acid or saturated aqueous solution of magnesium sulfate apparently afforded the most relief of pain due to the buboes. In 47 cases (22.2 per cent) the glands eventually suppurated and either ruptured spontaneously or were incised when they were pre-

illness for the majority of the patients, as 15 deaths occurred during the first twenty days and several patients deserted the hospital early in their illness. A more reliable figure is probably higher than the actual one. The longest period of hospitalization for one patient was one hundred and forty-four days. Certainly the duration of hospitalization is an appreciable factor in consideration of the care of patients with tularemia.

Duration of Symptoms.—Excluding 6 patients that deserted the hospital and 17 patients that died with tularemia, the known duration of symptoms for the

TABLE 4—Summary of Seventeen Deaths from Tularemia

Case	Age	Sex	Color	Type of Disease	Contact	Associated Findings	Course of Illness	Duration of Illness	Blood Counts on Admission	Hospital Days	Presumptive Cause of Death
1	33	♂	C	Oculo glandular	Rabbit 2 days	Bronchopneumonia	Febrile, steady downhill course	14 days	9,500 W B C., 60 P., 34 L., 6 M.	4	Pneumonia, etiology undetermined
2	33	♀	W	Glandular	Rabbit	Pronounced anemia, Neocator americanus	Some improvement prior to last day	55 days	16,000 W B C., 87 P., 8 L., 5 M.	21	Blood transfusion reaction
3	33	♂	W	Ulceroglandular	Rabbit 7 days	Nephritis, splenitis, hepatitis, right upper lobe pneumonia, pleural effusion	Febrile, downhill, terminal period	167 days	11,000 W B C., 60 P., 28 L., 12 M.	31	Pneumonia, etiology undetermined
4	18	♂	W	Ulceroglandular	Rabbit 1 day	Bronchopneumonia, hepatitis	Febrile, steady downhill course	17 days	8,750 W B C., 73 P., 18 L., 8 M., 1 E.	4	Pneumonia, hepatitis
5*	22	♂	C	Typhoidal	No history	Pneumonia, hepatitis, lung abscesses, splenitis, enteritis	Febrile, rapid downhill course	10 days	20,500 W B C., 92 P., 8 L.	5	Pneumonia, septicemia
6	33	♀	C	Ulceroglandular	Rabbits, multiple contact	Pneumonia	Febrile, downhill course	23 days	22,000 W B C., 84 P., 14 L., 2 M.	5	Pneumonia, septicemia
7*	26	♂	C	Typhoidal	Rabbit 1 day	Pneumococci bronchopneumonia, type VIII, empyema, hepatitis, splenitis	Febrile, downhill course	10 days	18,650 W B C., 77 P., 27 L.	5	Pneumonia, septicemia
8	41	♂	C	Typhoidal	..	Tularemia meningitis, bronchopneumonia	Febrile, rapid downhill course	11 days	11,500 W B C., 81 P., 16 L., 3 M.	6	Meningitis, pneumonia
9*	21	♀	C	Typhoidal	..	Tularemia pneumonia, pulmonary abscesses, syphilis	Febrile, downhill course	10 days	7,860 W B C., 80 P., 20 L.	2	Multiple lung abscesses, malignant neutropenia (count down to 2,000 with sulfonamide), septicemia
10*	26	♂	C	Typhoidal	..	Cholesteatoma of brain, pneumonia, type X pneumococci	Gradual downhill course	28 days	15,500 W B C., 90 P., 8 L., 1 M., 1 E.	23	Pneumonia, cholesteatoma of brain
11	77	♂	C	Ulceroglandular	Rabbit	Pneumonia, focal necrosis of liver, spleen, lungs, lymph nodes	Febrile, downhill course	9 days	6,500 W B C., 82 P., 18 L.	3	Pneumonia, septicemia
12	50	♀	C	Typhoidal	?	Syphilis, pneumonia, splenitis, hepatitis	Febrile, downhill course	15 days	8,800 W B C., 64 P., 34 L., 2 M.	4	Pneumonia, septicemia
13	58	♀	W	Ulceroglandular	?	Diabetes mellitus, bilateral bronchopneumonia, coronary disease	Febrile, acidosis, downhill course	24 days	12,500 W B C., 70 P., 20 L., 4 M.	18	Acidosis, coronary disease, pneumonia, septicemia
14	40	♀	C	Ulceroglandular	Rabbit, multiple contact	Bronchopneumonia	Febrile, downhill course	14 days	12,500 W B C., 82 P., 16 L., 2 E.	9	Pneumonia, septicemia
15	40	♂	C	Typhoidal	Rabbit	Pneumonia	Febrile, rapid downhill course	6 hours	90,000 W B C., 87 P., 17 L.	1	Pneumonia, septicemia
16	27	♀	C	Ulceroglandular	Rabbit	Sickle cell anemia, pneumonia, adenitis, splenitis	Febrile, downhill course	18 days	7,600 W B C., 56 P., 40 L., 4 M.	5	Anemia, pneumonia, septicemia
17	48	♀	W	Ulceroglandular	Rabbit	Adenitis, splenitis	Gradual downhill course	120 days	8,700 W B C., 62 P., 41 L., 4 M.	81 here; died 4 days later in another hospital	Not determined

* Previously reported by Moss and Weilbacher² and by Weilbacher and Moss.⁴

sumably sterile. Incision and drainage of an enlarged gland in the neck of 1 patient resulted in death, apparently as a result of rapid dissemination of the organisms throughout the body following this procedure.¹⁰ It is our practice to withhold surgical intervention of inflamed lymph nodes until suppuration has occurred and rupture is imminent.

Average Hospital Days.—The average hospitalization for our patients was 22.35 days. This value is not entirely indicative of the actual duration of acute

remaining 202 patients in our series was 40.29 days. A substantial number, however, experienced malaise well beyond the average of forty days, the longest duration in 1 patient being one hundred and fifty-one days. These data concerning the length of convalescence should not be accepted as entirely accurate other than to emphasize again the prolonged morbidity of tularemia infections. Several of our patients failed to experience a complete sense of well being for almost a year following apparent clinical recovery.

Deaths.—Seventeen of 225 patients died with tularemia, a mortality of 7.55 per cent. These have been summarized in table 4. Twelve were colored and 5

10. Muecke, J. H., and Cannon, H. I.: Tularemia, in Piersol, G. M.; Britz, L. L., and others: *The Cyclopedia of Medicine, Surgery, and Specialties*, Philadelphia: J. A. Davis Company, 1940, vol. 15, pp. 430-447.

were white; 9 were males and 8 were females. As previously reported,² it has been our impression that Negroes manifest less resistance to tularemia than white patients, particularly to the pneumonic forms of the disease. This is further substantiated by the fact that 12 of 93 Negroes (12.9 per cent) died, while only 5 of 132 white patients (3.8 per cent) failed to recover from the disease. The average age of our patients that died was 33.8 years.

As one would expect, the mortality rates for the various types of tularemia varied considerably. Thus, 8 of 181 patients with ulceroglandular tularemia died, a mortality rate of 4.4 per cent, as compared to 7 of 14 patients with the typhoidal type of disease, a mortality rate of 50 per cent. One of 7 oculoglandular patients and 1 of 23 patients with glandular tularemia died, a mortality of 14.3 per cent and 4.35 per cent respectively. The average duration of the disease before death was 30.85 days. However, when 2 examples of chronic progressive tularemic infection were excluded from this group, the average duration of the disease before death was only eight days. The longest duration for the entire group was one hundred and sixty-seven days, while the shortest duration of illness before death was thirty-six hours.

Apparently most of the patients died as a result of their tularemic infection. Ten of the 12 patients examined post mortem had tularemic pneumonia and 1 also had tularemic meningitis¹¹ as well. Only 2 of the 12 patients examined post mortem failed to show widespread tularemic infection as evidenced by involvement of the liver, spleen and lymph nodes. Whether septicemia, toxemia or an unrecognized complication contributed to these patients' deaths we are unable to say. Three of the deaths in our group could be accounted for by complicating factors. One death was that of a white female which followed a blood transfusion reaction. Uncontrolled diabetes mellitus contributed to the death of another white woman. One colored female apparently developed a malignant neutropenia following sulfonamide therapy.

COMMENT

From the variety of clinical manifestations that have been noted, it is evident that the diagnosis of tularemia may frequently be fraught with difficulty. Although it is convenient to classify the disease into ulceroglandular, glandular, oculoglandular and typhoidal forms as proposed originally by Francis,¹² the clinical features of the various types may be quite similar. One may, in effect, consider tularemia a systemic disease in which the local ulceration with regional lymphadenopathy generally predominates but in which constitutional symptoms may appear which are out of proportion to the local lesion. The latter expressions of the disease are due to both a septicemia and a bacteremia. In such instances recourse to laboratory methods must be made to establish the diagnosis.

SUMMARY

An analysis of 225 cases of tularemia observed in a single institution has emphasized the wide variety of clinical expressions of tularemic infections. The prolonged morbidity and the case fatality rate (7.55 per cent) for this series also are worthy of note.

11 Stuart, B. M., and Pullen, R. L.: Tularemic Meningitis: Review of Literature and Report of Case with Postmortem Observations, *Arch. Int. Med.*, to be published.

12 Francis, E.: Deer Fly Fever or Pahvant Valley Plague. A Disease of Man of Hitherto Unknown Etiology, *Pub. Health Rep.* 34: 2061 (Sept. 12) 1919; Tularemia, *Atlantic M. J.* 30: 337-344 (March) 1927; Summary of Present Knowledge of Tularemia, *Medicine* 7: 411-432 (Dec.) 1928.

CONTROL OF SYPHILIS IN PREGNANT WOMEN

UNDER THE CARE OF THE GENERAL PRACTITIONER

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Several years ago I¹ described a plan for controlling syphilis in pregnant women under the care of the general practitioner. This plan, part of the Illinois statewide venereal disease control program (Chicago excluded), has been carried out along the general principles then outlined up to the present time, when I am able to report on the outcome of 1,448 cases of syphilitic pregnant women under the care of 1,087 private physicians. McKelvey and Turner,² McCord,³ Ingraham,⁴ Halloran⁵ and others⁶ have reported on the outcome of syphilitic pregnant women treated in public hospital clinics and maternity centers, but I have been unable to find any reports of the outcome of such cases treated by private physicians.

PLAN OF MANAGEMENT

The Illinois antepartum blood-testing law became effective in July 1939. This law provides that all physicians attending pregnant women must submit specimens of the patients' blood for serologic examination to a state or an approved private or hospital laboratory. In the case of a positive blood test, a copy of the report is submitted by the laboratory to the office of the Division of Venereal Disease Control. The central registry is then checked to see if the case has been reported by the physician. If it has not been reported, a letter is sent to the attending physician requesting him to report the case if he has determined that the patient has syphilis. On receipt of this report, antisyphilitic drugs are sent to the physician together with the pamphlet "Syphilis in Mother and Child," published by the United States Public Health Service. The physician's morbidity venereal disease report is then carefully checked as to the age of the patient, sex, color, approximate date of delivery, duration and type of syphilitic infection and whether or not the patient is receiving treatment. If the patient is not receiving treatment, a venereal disease investigator, nurse or public health physician gets in touch with the patient, with the approval of the attending physician, and every effort is made to place and keep her under treatment throughout her term of pregnancy. Another letter is then sent to the attending physician informing him of our special interest in the case, at the same time calling his attention to the importance of instituting treatment promptly and continuing it until the day of delivery. He is also urged to make a test of the infant's blood after two months. An average of 1,462 letters yearly sent to physicians discussed some phase of the management of the syphilitic pregnant women under their care.

From the Illinois Department of Public Health, Dr. Roland R. Cross, director. Mr. Benjamin H. Sklar compiled the statistical data. Dr. Soloway was formerly chief, Division of Venereal Disease Control, Department of Public Health.

1 Soloway, H. M.: Control of Syphilis in Pregnant Women, *Illinois M. J.* 77: 44 (Jan.) 1940.

2 McKelvey, T. L., and Turner, T. B.: Syphilis and Pregnancy. Analysis of Outcome of Pregnancy in Relation to Treatment in 943 Cases, *J. A. M. A.* 102: 503 (Feb. 17) 1934.

3 McCord, J. R.: Syphilis and Pregnancy. Clinical Study of 2,150 Cases, *J. A. M. A.* 105: 89 (July 13) 1935.

4 Ingraham, N. R., Jr.: Complications Due to Arsenical Therapy in Syphilitic Pregnant Women, *J. A. M. A.* 112: 1537 (April 22) 1939.

5 Halloran, C. R.: Review of Records of Syphilitic Pregnant Women Treated at Los Angeles Maternity Service Over Ten Year Period, *Am. J. Obst. & Gynec.* 38: 135 (July) 1939.

6 Moore, J. E.; Kemp, J. E., and others: The Modern Treatment of Syphilis. Springfield, Ill., Charles C. Thomas, Publisher, 1943.

MATERIAL STUDIED

This report is concerned with the outcome of 1,448 cases of syphilitic pregnant women, all under the care of private physicians. No clinic treated cases were included. Only those cases were analyzed in which the child's blood serologic status was rechecked after 2 months of age. There were 243 women who were not included in this study for the following reasons: 57 moved out of the state; 76 moved and could not be located; 56 were transferred to venereal disease clinics; 46 refused to have their children blood tested; 5 moved to the city of Chicago, and there were 3 cases in which the attending physicians refused to make blood tests of the children. There were reported an average of 350 cases a year under the care of 300 individual physicians.

ANALYSIS OF THE CASES STUDIED

Color.—There were 1,294 white and 154 colored pregnant syphilitic women studied (table 1).

Age.—There were 613 women between the ages of 15 and 24 years, 592 between 25 and 34 years and 162 over 35 years old. The age of 47 women was unknown (table 1).

Stage of Syphilis.—There were 16 cases of primary syphilis, 100 cases of secondary syphilis, 737 cases of asymptomatic syphilis of less than four years, 464 cases of late syphilis, 57 cases of congenital syphilis, 5 cases of neurosyphilis and 2 cases of cardiovascular syphilis. In 67 cases the stage of syphilis was not stated (table 2).

PLAN OF TREATMENT

A prescheduled outline of treatment is also mailed to the attending physician. This plan of treatment provides for a weekly intramuscular injection of a heavy metal without interruption throughout the term of pregnancy and eight to ten weekly injections of an arsenical drug with an occasional four weeks rest period. It is recommended that the treatment scheme be so arranged that the arsenical drug is administered in the last weeks of pregnancy. The drugs that are made available to the physician without cost are neo-arsphenamine (0.3 to 0.6 Gm.), oxophenarsine hydrochloride (mapharsen) or clorarsen (0.045 to 0.067 Gm.), bismuth salicylate (0.2 Gm.) or potassium bismuth tartrate (0.2 Gm.).

The physician is cautioned to make a complete physical examination and urine analysis and to observe carefully any untoward reactions from treatment, particularly early damage to the liver or kidneys. He is advised also to check on the outcome of the pregnancy, with special attention to the placental microscopic examination, roentgenograms of the infant's long bones, blood test after two months and periodic pediatric examinations for at least six months.

AMOUNT OF TREATMENT RECEIVED

There were 355 women who did not receive any anti-syphilitic treatment at all; 349 received from one to nine intravenous injections of an arsenical and 403 received one to nine intramuscular injections of a bismuth preparation; 423 received from ten to nineteen arsenical injections and 367 received ten to nineteen

bismuth injections; 215 received twenty to twenty-nine arsenical injections and 202 received the same amount of bismuth; 64 women received more than thirty arsenicals and 79 women received more than thirty injections of bismuth preparations. The amount of treatment received by 42 women was not stated (tables 3 and 4).

RESULTS OF TREATMENT

The treatment of the pregnant syphilitic woman to prevent her infant from becoming infected in utero is one of the most effective forms of preventive medicine known. It has also been our experience that the sooner syphilis is diagnosed and the earlier the treatment is begun and continued throughout pregnancy, the better the prognosis for a living nonsyphilitic child.⁷

In the 550 cases in which treatment was started before the end of the fourth month of pregnancy there were 518 (94.31 per cent) normal nonsyphilitic children, and 32 cases terminated in stillbirth, miscarriage

[illegible]

Case holding report form.

or a syphilitic infant. In the 134 cases in which treatment was begun before the end of the fifth month of pregnancy there were 112 (83.58 per cent) normal non-syphilitic children, and 22 cases terminated disastrously.

There were 409 cases of syphilitic pregnant women placed under treatment after the fifth month, of which number 207 (50.6 per cent) terminated in the birth of normal nonsyphilitic children and 202 (49.4 per cent) terminated disastrously.

There were 355 cases of syphilitic pregnant women in which no treatment was given and among these only 93 (26.48 per cent) terminated in the birth of normal nonsyphilitic children, while the outcome of 262 (73.52 per cent) of the pregnancies in this group were disastrous (table 5).

REACTIONS TO TREATMENT

It is difficult to make an accurate analysis based on the reports of 1,087 individual observers. It is particularly difficult because the observers were all general

7. Cole, H. N., and others: Cooperative Clinical Studies in Treatment of Syphilis: Syphilis in Pregnancy. Ven. Dis. Inform. 15:83 (March) 1934; 17:39 (Feb.) 1936.

practitioners, most of them with limited experience in the field of syphilotherapy; then too the reactions encountered in the treatment of syphilis by chemotherapy are varied in kind and degree and are subject to a wide latitude in their interpretation.

There was 1 case of cutaneous hemorrhage reported, 1 of shock, 1 of jaundice and 2 of extensive dermatitis

TABLE 1.—Distribution by Age and Color

Age	Totals	Female White	Female Colored
15-19 ..	211	170	41
20-24 ..	402	354	48
25-29 ..	336	294	42
30-34 ..	256	229	27
35-39 ..	141	112	29
40 plus ..	2	20	2
Not stated* ..	47	41	6
Totals ..	1,448	1,294	154
Per cent.	100.0	89.4	10.6

* Information as to the stage of syphilis was not obtained because of death or military service of the attending physician or of our failure to locate the patients.

(type not described), all of them presumably serious reactions to treatment. The remainder consisted of bothersome but unimportant side effects such as nausea, vomiting, Herxheimer reactions and dizziness. It is particularly notable that there was not a single fatality encountered in the group; and there were but 8 reports of "severe" reactions, the nature of 13 other "severe" reactions being mentioned but the nature not recorded. It would seem, therefore, that pregnancy does not add to the hazards of antisyphilitic treatment—an opinion about which there is some difference of opinion.

CASE HOLDING

A very important part of the control of syphilis in pregnant women is the need to keep them under treatment throughout the pregnant period. To effect this there is sent to each attending physician a monthly check-up letter, which serves also as a requisition for free antisyphilitic drugs. It also suggests the next

TABLE 2.—Distribution by Color and Stage of Syphilis

Stage of Syphilis	Totals	Female White	Female Colored
Primary ..	16	16	0
Secondary ..	109	87	22
Early latent ..	77	65	12
Late latent ..	464	420	44
Neurosyphilis ..	5	4	1
Cardiovascular ..	2	2	0
Congenital ..	57	50	7
Not stated* ..	67	57	10
Totals ..	1,448	1,294	154
Per cent.	100.0	89.4	10.6

* Information as to the stage of syphilis was not obtained because of death or military service of the attending physician or of our failure to locate the patients.

five weeks treatment for the patients listed in our records as being under the care of the physician addressed. He is requested to indicate his choice of drugs for each patient and at the same time to report any patient who has discontinued treatment. Every effort is made by an investigator, nurse or public health physician to return the delinquent patient to the reporting physician for further treatment. We are thus

able to have a thirty day report from physicians receiving free drugs of every patient under their care. An average of 740 such investigations were made each year in order to have about 300 cases reported, placed and kept under treatment throughout pregnancy as well as to check the child's blood after 2 months of age.

COMMENT

There are still many undesirable factors to overcome. There are still some practitioners who are not convinced of the desirability to do routine blood tests for syphilis on all pregnant women.

Many physicians have written to us of their inability to take blood specimens from infants, and they have asked for assistance. In such instances the child is referred to a venereal disease clinic, or a staff physician is sent to take the blood.

TABLE 3.—Results by Number of Injections of Arsenicals Administered

Arsenicals	Totals	Normal Results	Disastrous Results	Per Cent Normal	Per Cent Disastrous
None ..	355	91	262	25.6	74.4
1-9 ..	340	204	136	60.0	40.0
10-19 ..	42	546	77	81.8	18.2
20-29 ..	215	202	13	93.9	6.1
30 plus ..	64	59	5	92.1	7.9
Not stated* ..	42	26	16	61.9	38.1
Totals ..	1,448	970	478	66.9	33.1

* Information as to the stage of syphilis was not obtained because of death or military service of the attending physician or of our failure to locate the patients.

TABLE 4.—Results by Number of Injections of Heavy Metals Administered

Heavy Metals	Totals	Normal Results	Disastrous Results	Per Cent Normal	Per Cent Disastrous
None ..	355	91	262	25.6	74.4
1-9 ..	403	247	156	61.3	38.7
10-19 ..	367	301	66	82.0	18.0
20-29 ..	202	188	14	93.1	6.9
30 plus ..	79	73	6	92.4	7.6
Not stated* ..	42	26	16	61.9	38.1
Totals ..	1,448	970	478	66.9	33.1

* Information as to the stage of syphilis was not obtained because of death or military service of the attending physician or of our failure to locate the patients.

The Illinois Prenatal Law provides for the blood test to be taken by the attending physicians at the time of the patient's first visit, with the intent of instituting treatment early. Yet to this day many pregnant women do not apply for medical care until very late in pregnancy or just before confinement. Then too the law does not compel a woman to take treatment if she refuses it.

Another important handicap to overcome is the reluctance of many mothers to have their infants' blood tested.

There is still much difficulty in remote rural districts in securing the cooperation of midwives in our plan to control syphilis in pregnant women.

Obviously there is great need for continued educational programs on all phases of the cause, spread and cure of syphilis. The general public and the midwife must be educated, and the general practitioner is in need of special education.

CONCLUSIONS

1. The treatment of pregnant syphilitic women to prevent congenital syphilis is one of the most effective forms of preventive medicine.

2. The treatment recommended consists in a weekly muscular injection of a bismuth compound throughout the term of pregnancy and eight to ten intravenous injections of an arsenical, with an occasional four week rest period.

TABLE 5.—Results by Time of Treatment

Month Treatment Started	Total	Normal Results	Disastrous Results*	Per Cent Normal	Per Cent Disastrous
1.....	170	164	6	96.47	3.53
2.....	85	81	4	95.29	4.71
3.....	122	127	7	94.69	5.31
4.....	163	148	15	90.79	9.21
5.....	124	112	12	83.58	16.42
6.....	137	71	66	51.82	48.18
7.....	134	38	78	42.63	57.35
8.....	102	30	43	37.84	62.16
9.....	34	19	15	55.88	44.12
No treatment.....	353	97	262	26.19	73.18
Totals.....	1,445	930	515		
Per cent.....	100.0	64.23	35.75		

* Disastrous result indicates miscarriage, stillbirth or living syphilitic infants.

3. As a result of the Illinois plan of control of syphilis in pregnant women under the care of the general practitioner there were 94.31 per cent normal living nonsyphilitic children in the 550 cases in which treatment was started before the end of the fourth month of pregnancy.

4. There was not a fatality reported as the result of antisyphilitic treatment.

5. Interpretation of serious treatment reactions by so many general practitioners* (with limited experience in this field) is very difficult. There were 8 "serious" reactions reported, and mention was made of 13 other "serious" reactions which were not recorded.

6. Pregnant women tolerate antisyphilitic treatment as well as if not better than nonpregnant women.

7. Case holding efforts necessitated public health physicians, nurses and lay investigators to make 740 investigations every year in order to have about 300 cases

TABLE 6.—Reactions Reported

Slight reaction (type not stated).....	18
Mild reaction	17
Severe reaction	13
Vomiting rest	12
Nausea	15
Dizziness	3
Gastrointestinal upset.....	7
Chills.....	1
Shock.....	1
Extensive dermatitis.....	2
Hemorrhage under the skin.....	1
Herxheimer reaction.....	3
	1
	1

reported, placed and kept under antisyphilitic treatment throughout pregnancy as well as to check the child's blood after 2 months of age.

8. The Illinois Prenatal Law offers an excellent method of case finding.

9. Educational programs on all phases of the cause, spread and cure of syphilis are greatly needed for the general public and midwives, and the general practitioner is in need of special education.

55 East Washington Street.

THE TREATMENT OF ACUTE SUPPURATIVE OTITIS MEDIA WITH PENICILLIN

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Acute suppurative otitis media is a problem of great importance to the pediatrician, internist and otologist who encounter it frequently either as an isolated disease or in the course of such infections as scarlet fever or measles. If improperly or inadequately treated, its complications may lead to partial or total loss of auditory function or, in some instances, may seriously endanger life. The development of a method of treatment which will eliminate serious complications and reduce the incidence of mastoidectomy and other operative procedures is most desirable and is a matter which has attracted the attention of many investigators for a long time.

Before the era of specific chemotherapeutic agents, therapy of acute suppurative otitis media was directed mainly to the local application of various agents through the external auditory canal for the purpose of reducing pain and killing the bacteria that were present in the middle ear. Such methods had but little beneficial effect, and a high percentage of serious complications attested this fact. The discovery of the sulfonamides led to the use of this group of chemicals not only for the treatment of the suppurative otitis media but also as prophylactic agents for the prevention of this condition in scarlet fever, measles and so on. The sulfonamides have appeared to be of little value in the prevention of infections of the middle ear during the course of other diseases, according to some investigators.¹ Their use after the otitis media has been established has led to variable results. Some cases have responded well, with complete subsidence of the acute process and without involvement of the mastoid. In others, aural discharge has ceased shortly after one of the sulfonamides was administered but recurred in a short time after the drug had been stopped. Even repeated treatment of some patients has not produced complete eradication of the infections, and many of them have developed mastoiditis. Treatment of repeated recurrences until ear discharge ceased has led to delay of mastoidectomy in some cases until the otitis media became chronic and the only hope of cure was a radical operation with subsequent loss of hearing on the affected side. In some instances, treatment with one of the sulfonamides has had no effect on the usual course of the ear infection and operation has been resorted to after the usual period of waiting. While the results of treatment of purulent otitis media with sulfonamides are not universally good, the use of these drugs has improved the situation decidedly, since a fairly large number of cases have been cured without any further treatment and, on the whole, the incidence of serious complications has decreased; suppurative mastoiditis.

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From the Haynes Memorial and the Evans Memorial Massachusetts Memorial Hospitals, and the Department of Medicine, Boston University School of Medicine.

The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for clinical investigations recommended by the Committee on Chemotherapeutic and Other Agents of the National Research Council.

1. Wes-elhoeft, C.: Sulfanilamide in Management of Acute Streptococcal, Particularly Scarlatinal, Infections of Upper Respiratory Tract. *New England J. Med.* 224: 221-226, 1941.

lateral sinus thrombosis, extradural abscess, bacteremia and other conditions may occur, however, in patients who are treated with one of the sulfonamides. Although these drugs have been of tremendous aid in the treatment of suppurative otitis media, they still leave much to be desired.

The agent which has attracted the most attention recently in the treatment of infectious diseases of various types is penicillin. No attempt to review the literature concerned with the development of this antibiotic substance or with its use in various bacterial diseases will be made here, since this subject has been adequately covered in many publications. As soon as the highly bactericidal and nontoxic properties of penicillin were clearly demonstrated, investigations were started to determine its usefulness in the treatment of infections affecting the ear, nose and accessory structures. Only those reports dealing with the application of the antibiotic substance in acute purulent otitis media are reviewed in this paper.

Swanson and Baker² treated 14 cases of acute suppurative otitis media with varying doses of penicillin, with universally successful results. The drug was administered intramuscularly and the amount used varied according to the severity of the case; total dosage ranged from 360,000 to 1,140,000 units. Infections due to *Staphylococcus aureus* were found to require more penicillin before a cure was produced than those in which the hemolytic streptococcus or other organisms were concerned. A study of the bacteriology of the aural discharges revealed *Staph. aureus* in 2 cases, hemolytic *Staph. aureus* in 2, the hemolytic streptococcus in 8, the pneumococcus in 1 and hemolytic *Staph. aureus* combined with the beta-hemolytic streptococcus in 1.

Glassburn³ has reported 3 cases of acute suppurative otitis media in which facial paralysis occurred as a complication on the sixth, fifteenth and twenty-third day of the ear infection. One of these was treated with sulfadiazine and the 2 others with penicillin given intramuscularly in divided doses varying from 100,000 to 160,000 units daily. All the patients recovered completely, and no surgical procedures were necessary.

The effect of penicillin on acute suppurative otitis media has also been studied by Ball.⁴ Seventeen cases, 12 of which occurred as a complication of scarlet fever, were first treated with full dosage of sulfadiazine and, when this agent was found to be ineffective, 20,000 units of penicillin was administered intramuscularly every four hours until a total of from 380,000 to 2,000,000 units had been given. Resolution of the infection with normal hearing resulted in one to two weeks, the average time being about nine days. Ten of the post-scarlet fever patients recovered rapidly, 1 required surgical intervention and the last got well slowly. Clouding and destruction of the mastoid cells were noted by x-ray examination in all of the patients. Mastoiditis was a clinically evident complication in all at the time of starting the penicillin therapy, since mastoid tenderness and/or sagging of the posterior wall of the auditory canal was evident at the end of the ineffective course of sulfadiazine. The other 5 patients with otitis media who had signs and symptoms of acute mastoiditis at the termination of the sulfonamide treatment were given penicillin, and all recovered com-

pletely without any further measures. Bacteriologic studies of the aural discharges in these patients revealed hemolytic *Staphylococcus albus* in 4 and *Staphylococcus aureus* in 1.

Craig and his co-workers⁵ have reported the results of penicillin treatment of 36 cases of acute suppurative otitis media and acute mastoiditis. Their original scheme of treatment consisted in the continuous intravenous administration of the antibiotic agent in isotonic solution of sodium chloride containing 20,000 units per liter. Intramuscular injections of the drug, 10,000 units every three hours for seven days, also were given. The treatment schedule was eventually changed to 20,000 units administered intramuscularly either in separate doses every two hours or continuously for at least five to seven days. All of the patients responded satisfactorily; those in whom the otitis media was early were rid of the infection after two to four days of treatment, while those who had had infections of the middle ear for one to two weeks prior to start of treatment required a longer period of therapy before good results were obtained.

Our purpose in the work reported here was to investigate the effectiveness of penicillin given very early in the course of suppurative otitis media in curing the infection and preventing complications; to determine the effective dose range and the length of time over which treatment had to be continued; to ascertain whether or not there is any correlation between the total amount of the antibiotic substance required to produce good results and the type of organism which is responsible for the infection, and to study, by means of x-ray examinations, the effect of this type of treatment on involvement of the mastoid. Since purulent otitis media is not an infrequent sequel to scarlet fever, the opportunity was available in our hospital to treat a fairly large number of patients with acute middle ear infections and to follow them very carefully from the bacteriologic and clinical points of view.

METHODS

Patients in whom the diagnosis of acute suppurative otitis media was unquestionable were the ones selected for this study. No individual was treated until exudate appeared in the external auditory canal as the result either of spontaneous perforation (48 cases) or of paracentesis of the drum. As soon as purulent aural discharge appeared, cultures were taken in the manner to be described and treatment with penicillin started. This was the procedure for all but 11 of the patients; 5 were first treated twenty-four hours after the appearance of the exudate, and 6 did not receive the antibiotic agent until forty-eight hours after the eardrum had ruptured.

Ten thousand units of penicillin was administered by intramuscular injection every three hours until the external auditory canal was dry for at least twenty-four hours; in some instances treatment was prolonged for several days after cessation of aural drainage. The size of each dose and the interval between injections were kept constant, so that the only variable was the length of time over which therapy was continued. Each patient was examined daily from the time of first appearance of signs of acute suppurative otitis media for changes in appearance of the eardrum and for evidence of mastoiditis. The external auditory canal was cleansed

2. Swanson, C. A., and Baker, D. C., Jr.: Use of Penicillin in Diseases of the Ear, *J. A. M. A.* 120: 616-620 (Nov. 4) 1944.
3. Glassburn, E. M.: Facial Paralysis in Acute Otitis Media and Use of Penicillin, *Arch. Otolaryng.* 41: 218-219 (March) 1945.
4. Ball, S.: Penicillin in Acute Otitis Media and Mastoiditis, *Arch. Otolaryng.* 41: 109-112 (Feb.) 1945.

5. Craig, W. M.; Thompson, C. J.; Hutter, A. M.; Barksdale, E. E.; Pfeiffer, C., and Woolley, P. V., Jr.: Penicillin: A Progress Report, *U. S. Nav. M. Bull.* 44: 453-479, 1945.

of purulent material several times a day by means of dry sterile gauze wicks.

Roentgenologic examination of the mastoid on the involved side was carried out in every case as soon as the ear began to drain and repeated every seven days, the last film being taken on the day before discharge from the hospital. In many of the cases an x-ray study of the paranasal sinuses also was made.

Four of the patients who developed secondary infections with gram negative bacteria were treated by the instillation of four drops of a sterile aqueous solution of 10 per cent urethane and 1 per cent sulfanilamide into the external auditory canal every three hours, the purulent exudate being first removed by means of sterile gauze wicks.

The aural discharge in all cases was obtained for bacteriologic study as soon as it was first observed, by inserting a sterile cotton swab gently into the external canal. This material was streaked immediately over a blood agar plate, the medium consisting of a mixture of yeast extract, tryptose, peptone, heart infusion, glucose and agar. All cultures were incubated at 37 C. for twenty-four to forty-eight hours and then the colonies examined macroscopically and by means of the Gram stain. All of the gram negative bacteria which were isolated were studied by means of sugar reactions and type of growth on eosin-methylene blue agar. Cultures of the auditory canal were taken daily as long as discharge persisted and about every other day thereafter until the patient was discharged from the hospital.

All of the cases were observed for a minimum of seven days following cessation of penicillin treatment. In most instances this period of observation was for two or more weeks because of the necessity of completing the quarantine period for scarlet fever. A follow-up study of the patients was made by means of a mailed questionnaire from one to eight months after discharge from the hospital.

RESULTS

Fifty cases of acute suppurative otitis media, 48 occurring as a complication of scarlet fever, 1 observed in the course of measles and another during an episode of streptococcal pharyngitis, were studied. Perforation of the tympanic membrane with discharge of purulent exudate took place between the first and the fifth day of the primary disease in 15, between the eighth and fifteenth day in 14, between the sixteenth and twenty-fifth in 14, and between the thirtieth and sixtieth days in 7 patients. Treatment with penicillin was started in 39 of the cases on the same day on which ear drainage was first noted, in 5 after twenty-four hours and in the remaining 6 forty-eight hours following the first appearance of exudate in the external auditory canal.

Bacteriologic studies of the purulent exudates revealed hemolytic *Staphylococcus aureus* alone in 11 cases (22 per cent), the beta-hemolytic streptococcus alone in 21 (42 per cent), nonhemolytic *Staph. aureus* alone in 10 (20 per cent), the beta-hemolytic streptococcus and hemolytic *Staph. aureus* in 5 (10 per cent), the beta-hemolytic streptococcus and nonhemolytic *Staph. aureus* in 2 (4 per cent) and *Corynebacterium diphtheriae* and nonhemolytic *Staph. aureus* in 1 (2 per cent). After the use of penicillin for varying periods of time, these organisms tended to disappear fairly rapidly in most instances, but *Staphylococcus aureus* persisted for a considerably longer time than did the beta-hemolytic streptococcus.

Penicillin was administered to each of the patients in a dosage of 10,000 units intramuscularly every three hours and treatment continued until the aural discharge had been absent for at least twenty-four hours. Thus, as already pointed out, the daily total dose for each patient was the same, differences in the amount of antibiotic substance used being determined only by the duration of the therapy. Twenty-two patients were treated for an average of four days with a total of between 300,000 and 400,000 units of penicillin. Thirteen of these were infected with *Staphylococcus aureus* alone, 4 with the beta-hemolytic streptococcus and hemolytic *Staph. aureus*, 3 with nonhemolytic *Staph. aureus* alone, 1 with hemolytic *Staph. aureus* alone and 1 with hemolytic *Staph. aureus* and the beta-hemolytic streptococcus. The average time required for the aural discharge to disappear was 3.9 days. There were four recurrences of the suppurative otitis media after completion of treatment in this group.

Nineteen patients required a total dose of between 400,000 and 800,000 units of penicillin, administered

TABLE 1.—Summary of Bacteriologic Findings and Clinical Results in the Treatment of Acute Suppurative Otitis Media with Penicillin

	Total Dosage of Penicillin Used			
	300,000-400,000 Units	400,000-800,000 Units	800,000-1,500,000 Units	1,500,000-2,500,000 Units
Number of patients.....	22	19	8	1
Average number of days treated.....	4	6.6	14.2	33
Average time required for dry ear.....	3.9	4.4	14.0	30
Number of recurrences.....	4	1	3	0
Hemolytic <i>Staphylococcus aureus</i> alone.....	1	6	4	0
Hemolytic streptococcus alone	1	4	1	0
Nonhemolytic <i>Staphylococcus aureus</i> alone.....	3	7	0	0
Hemolytic streptococcus and hemolytic <i>Staphylococcus</i>	4	0	0	1
Hemolytic streptococcus and nonhemolytic <i>Staphylococcus aureus</i>	1	1	0	0
Nonhemolytic <i>Staphylococcus aureus</i> and <i>Corynebacterium diphtheriae</i>	0	1	0	0

over an average period of 6.6 days, to produce disappearance of the signs of infection of the middle ear in an average of 4.4 days. Of these individuals, 6 were found to harbor *Staphylococcus aureus* alone, 4 the beta-hemolytic streptococcus alone, 7 nonhemolytic *Staph. aureus*, 1 the beta-hemolytic streptococcus and nonhemolytic *Staph. aureus* and 1 nonhemolytic *Staph. aureus* and *C. diphtheriae* in the aural exudate. There was one recurrence of otitis media following cessation of therapy in this group.

Eight of the 9 remaining patients were given between 800,000 and 1,500,000 units of the antibiotic agent over an average period of fourteen and two-tenths days; the mean time required for the disappearance of signs of infection of the ear was fourteen days. Bacteriologic studies of the aural discharges in these individuals revealed 4 to contain hemolytic *Staphylococcus aureus* alone, and the other 4 the beta-hemolytic streptococcus alone. There were three recurrences in this group. The ninth patient, who was infected with the beta-hemolytic streptococcus and hemolytic *Staph. aureus* was treated with 2,500,000 units of penicillin over a period of thirty-three days; the aural discharge stopped thirty days after therapy was started. The summarized data are shown in table 1.

Daily examinations of the ears while treatment was being given revealed gradual decrease in the amount of purulent exudate and subsidence of bulging and redness of the drum. The temperature, if elevated, returned rapidly to normal. In some instances slight to moderate inflammation of the tympanic membrane as well as a very small amount of mucoid material in the external auditory canal persisted for several days after treatment was stopped. Many of the patients showed some degree of thickening of the eardrum at the time of discharge from the hospital.

Correlation of the type of organisms producing the purulent otitis media and the total dosage of penicillin required to effect a cure revealed that in the group of 22 patients recovering after treatment with the smallest amount of penicillin (300,000 to 400,000 units) only 9 (41.4 per cent) were infected with *Staphylococcus aureus*, hemolytic or nonhemolytic, either alone or in combination with the beta-hemolytic streptococcus. Of the 19 patients requiring somewhat larger doses (400,000 to 800,000 units), 15 (78.9 per cent) harbored *Staphylococcus aureus* either alone or in combination with the beta-hemolytic streptococcus. Four (50 per cent) of 8 subjects who had to be given between 800,000 and 1,500,000 units of penicillin before there was a cessation of the signs and symptoms of disease of the middle ear were infected with the hemolytic *Staph. aureus* alone. The individual who required the largest

thickening and grayness of the wall of the lateral sinus, and a diagnosis of sinus phlebitis was made. There were no clinical signs of mastoiditis before carrying out the surgical procedure, and it is important to point out that no evidence of infection of the mastoid bone on the affected side could be found at operation. Two other patients developed elevations of temperature, in 1 case to 102-103 F. for three days, while receiving treatment. The fever disappeared very promptly when administration of the drug was stopped, and it was assumed that the febrile reaction was the result of an allergic reaction to penicillin. No other complications were observed.

Recurrences of the otitis media at various times after cessation of penicillin treatment were observed in 8 patients. Of these, 4 were in the group who had received 300,000 to 400,000 units of drug in the original course; 1 developed a recurrence of the infection twice. One course of treatment failed to produce a permanent cure in 1 patient in the group that had received 400,000 to 800,000 units of penicillin and in 3 among those who had been given 800,000 to 1,500,000 units. Of the latter, 1 patient had to be given three courses of therapy with the antibiotic agent before he remained free from ear infection. Thus, a total of 8, 16 per cent, of the patients had recurrences; 2 of these, 4 per cent, had more than one recurrence. Three of the recurrences of infection occurred in five days, 1 in eight days, 2 in twenty-two days and 1 in thirty-two days after cessation of penicillin treatment. Bacteriologic studies revealed that, in most instances, recurrence of disease of the middle ear took place in those who had been infected with *Staphylococcus aureus* alone or in combination with the beta-hemolytic streptococcus during the first episode of suppurative otitis media; in many cases these organisms were still present in the external canal in spite of the absence of purulent exudate when penicillin therapy was stopped. All recurrent attacks were treated with penicillin in various doses. The results of this therapy are shown in table 2. From these data it can be seen that in 4 instances cure resulted after three to six days of treatment during which a total of 230,000 to 450,000 units of penicillin was given. Four other patients required 500,000 to 800,000 units of drug administered over a period of seven to nine days to produce a beneficial effect. Two were injected with 800,000 to 1,000,000 units of penicillin during eight to ten days before they recovered. The time required for cure of the exacerbations of the middle ear infections appeared to be in the same order of magnitude as that necessary to produce cessation of aural discharge during the first attack. All of the patients were completely free from all signs and symptoms of otitis media when they were discharged from the hospital.

A follow-up study carried out by mail revealed that 2 patients had had recurrences of the aural discharge within the first six weeks after cessation of penicillin therapy. They were not seen by us but their parents reported that, in both instances, the infection subsided after a short course of treatment with one of the sulfonamides. One patient developed whooping cough some time after discharge from the hospital and, in the course of this disease, had otitis media from which he recovered in several days with no treatment. Three months after leaving the hospital a fourth subject had a recurrence of earache with a slight amount of discharge, which ceased after one application of "ear drops."

During the course of penicillin treatment, gram negative bacteria appeared in the purulent exudate in the ears of 4 of the patients. Table 3 indicates the time

TABLE 2.—Dosage of Penicillin Used in Treatment of Recurrences

Number of Recurrences Treated	Number of Days Treated	Total Dose of Penicillin Used, Units
4.....	3-6	230,000-450,000
4.....	7-9	500,000-800,000
2.....	8-10	800,000-1,000,000

quantity of penicillin (2,600,000 units) was found to be harboring the beta-hemolytic streptococcus and non-hemolytic *Staph. aureus* in the aural exudate. From these data it would appear that infections of the middle ear in which *Staphylococcus aureus* is one of the etiologic agents are, on the whole, more refractory to treatment with penicillin than those in which the beta-hemolytic streptococcus is the etiologic agent.

Daily physical and weekly roentgenologic examinations of the mastoid were carried out in every case. None of the patients had any clinical evidence of mastoiditis in the form of redness, swelling or tenderness over the mastoid bone or sagging of the posterior auditory canal wall. X-ray studies revealed clouding of the mastoid cells coincident with the first appearance of discharge from the ear in all of the cases. In many, a minimal to moderate degree of cell destruction was also noted at the time therapy was started and was still present when the patient was discharged from the hospital. In a few instances there appeared to be regression of the process in the mastoid during the course of penicillin treatment.

Three of the patients with acute suppurative otitis media who were treated with penicillin developed complications directly related to the disease of the middle ear while receiving treatment. Two of them had a right facial paralysis, peripheral in character, which gradually cleared. In the third, fever, stiff neck and a pleocytosis of the cerebrospinal fluid (1,000 lymphocytes per cubic centimeter) occurred during therapy with the antibiotic agent. Mastoidectomy revealed

elapsing between the inception of penicillin treatment and the appearance of the gram negative bacteria, the length of time over which these organisms persisted before treatment was started, and the response to the instillation of urethane-sulfanilamide mixture. Three of the patients were harboring *Proteus vulgaris* and 1

TABLE 3.—Results of Treatment of Gram Negative Ear Infections Occurring During the Course of Penicillin Therapy with Urethane-Sulfanilamide Mixture

Patient	Days Elapsing Between Beginning of Penicillin Treatment and Appearance of Gram Negative Bacteria	Days Elapsing Between Appearance of Gram Negative Bacteria and Start of Urethane Treatment	Dose of Urethane	Number of Days of Urethane Treatment	Time Required for Gram Negative Organisms to Disappear from Ear Discharge
B. B.	2	5	4 drops in ear every 3 hours	6	1
M. P.	3	17	4 drops in ear every 3 hours	7	2
T. R.	1	8	4 drops in ear every 3 hours	7	1
T. T.	4	19	4 drops in ear every 3 hours	7	1

Pseudomonas aeruginosa. All were treated with an aqueous solution of 10 per cent urethane and 1 per cent sulfanilamide every three hours in the manner described under Methods. In all cases the gram negative bacteria disappeared after one to two days of treatment and were never recovered in culture again during the remainder of the period of observation.

SUMMARY AND COMMENT

From the results obtained in this study, it appears that penicillin is a very effective agent in the treatment of acute suppurative otitis media in which gram positive cocci are the etiologic agents. While local therapy might be more effective in this disease because high concentrations of drug could be placed at the actual site of infection and the necessity of frequent intramuscular injections with the attendant discomfort eliminated, it is not feasible at present because of the difficulty of introducing the drug into the middle ear. The antibiotic agent has many advantages over the sulfonamides in the treatment of acute middle ear infections because of its lack of toxicity, its failure to be inhibited by exudates and the fact that its use leads to a greater percentage of permanent cures without the necessity of resorting to mastoidectomy. There appears to be a definite relationship between the amount of penicillin required to produce good results and the type of organisms which are producing the otitis media. The data given seem to indicate that those infections in which the hemolytic *Staphylococcus aureus* is present, either alone or in combination with the hemolytic streptococcus, are more difficult to treat and require larger doses of the drug before a cure is effected. While recurrences are seen after penicillin treatment, these are apparently easily controlled by readministration of the antibiotic substance with eventual complete eradication of infection in all cases. The recurrence rate in penicillin-treated patients is definitely lower than in those receiving the sulfonamides.

Complications of suppurative otitis media are reduced to a minimum, and mastoiditis, which is by far the most common of the sequelae following middle ear infection,

is almost completely eliminated by penicillin therapy. In the 1 patient in this study who required surgical intervention because of a lateral sinus phlebitis, there was no evidence of mastoid infections at the time of operation. Table 4 indicates the incidence of mastoidectomy following purulent otitis media at the Haynes Memorial Hospital during the last five and one-half years. From 1940 until the inception of penicillin, all cases of acute suppurative otitis media were treated with one of the sulfonamides, and 27 to 52 per cent of them required mastoidectomy.

In the eight months during which all patients with suppurative otitis media were treated with penicillin, only 1 (2 per cent) underwent mastoidectomy, and in this instance the operation was not performed for difficulty in the mastoid bone but because of development of lateral sinus phlebitis. This represents a thirteen to twenty-six fold decrease in the incidence of mastoidectomy as compared to the period in which the sulfonamides were in use.

In general, in otitis media occurring during the course of scarlet fever, x-ray examination of the mastoid on the involved side on the first day the aural discharge appears usually shows clouding of the mastoid cells and, in some cases, a slight degree of destruction in addition. This was also true in the case reported here, but there appeared to be no increase in the severity of the roentgenologic findings during or after completion of the course of penicillin treatment. In a few instances there was clearcut evidence that the infection in the mastoid bone regressed under therapy.

Gram negative organisms such as *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Escherichia coli* and *Hemophilus influenzae* are known to be insensitive to the action of penicillin. Acute or chronic otitis media due to or complicated by infection with these bacteria is therefore not amenable to penicillin therapy. Collins and Hughes⁶ have recently pointed out the frequency and preponderance of gram negative organisms in chronic otitis media and the difficulty encountered in treating these cases with penicillin. They consider these bacteria to be true pathogens and not mere saprophytes. Weinstein and McDonald⁷ have shown that some of these organisms are very sensitive to the action of urethane in the test tube, and this drug was used to treat all of the patients in this study who developed secondary infections of the middle ear with

TABLE 4.—Incidence of Mastoidectomy in Suppurative Otitis Media at Haynes Memorial Hospital from 1940 to 1945

Year	Number of Cases of Otitis Media	Number of Mastoidectomies	Per Cent of Otitis Media Requiring Mastoidectomy
1940.....	151	42	27.8
1941.....	124	53	52.8
1942.....	59	25	32.5
1943.....	153	59	38.5
1944 (6 months).....	78	33	42.3
1944-1945 (8 months)...	59	1	2

Proteus vulgaris or *Pseudomonas aeruginosa*. All responded quickly and completely to local instillation of a 10 per cent urethane-1 per cent sulfanilamide solution in water. Although the number of cases of otitis

6. Collins, E. C., and Hughes, K. E. A.: The Treatment of Chronic Suppurative Otitis Media by the Local Application of Penicillin and Other Drugs. *J. Laryng. & Otol.* **59**: 81-95, 1944.

7. Weinstein, L., and McDonald, A.: The Effect of Urea, Urethane, and Other Carbamates on Bacterial Growth. *Science* **101**: 44-45, 1945.

media in which gram negative bacteria were present is very small, the results obtained with local application of urethane-sulfanilamide solution are quite striking. Further study of this combination of drugs for use in chronic middle ear infections is warranted.

The following regimen of penicillin therapy for suppurative otitis media due to gram positive organisms has been instituted in the hope of eliminating the recurrences and reducing still further the incidence of complications: Immediately on appearance of purulent exudate in the external auditory canal, 15,000 units of penicillin is administered intramuscularly and the same dose repeated every three hours until the aural discharge has been completely absent for seventy-two hours.

CONCLUSIONS

1. Fifty cases of acute suppurative otitis media, 48 of which occurred as a complication of scarlet fever, were treated with varying doses of penicillin intramuscularly. The external auditory canal was free from exudate in 82 per cent of the patients in less than four and one-half days following institution of therapy. Recurrence of the infection was observed in 16 per cent; these responded well to treatment with larger doses of penicillin.

2. There appeared to be some degree of correlation between the total dosage of penicillin required to effect a cure and the type of organism producing the middle ear infection. Infections in which the hemolytic *Staphylococcus aureus* was present alone or in combination with the beta-hemolytic streptococcus seemed to be more resistant to therapy but responded to larger quantities of the antibiotic agent.

3. Complications of acute suppurative otitis media were reduced to a minimum, and mastoidectomy was only an infrequent necessity.

4. Secondary infections with gram negative bacteria were well controlled by the local administration of 10 per cent urethane and 1 per cent sulfanilamide in aqueous solution.

5. The following regimen is suggested for the treatment of acute suppurative otitis media: intramuscular administration of 15,000 units of penicillin immediately after the appearance of exudate in the external auditory canal and repetition of the same dose every three hours until the aural discharge has been completely absent for seventy-two hours.

Variation in Organisms.—The study of variation in organisms reproducing asexually, such as bacteria and viruses, has not yet led to any compact body of generalization at all comparable to that of classical genetics. An immense amount of work has been done on bacterial variation ever since Pasteur's demonstration that attenuated variants might be used to immunize animals against a more virulent strain of the corresponding bacterial type. Most of such work has been done by methods which provide no data as to the frequency with which mutants appear nor any evidence as to whether the variant finally obtained was a primary mutant from the parent strain or appeared only as a result of a progressive series of heritable changes. There is a general tendency in the literature to avoid expressing an opinion even as to whether the variations observed result essentially from discontinuous mutation with selective survival of variants particularly suitable to the abnormal experimental environment, or whether they are to be regarded as modifications produced by a direct somatic effect (Lamarckian) of the changed environment.—Burnet, Frank MacFarlane: *Virus as Organism*, Cambridge, Mass., Harvard University Press, 1945.

THE ABUSE OF ENDOCRINE THERAPY IN GYNECOLOGY

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An analysis of a group of cases seen in the Department of Obstetrics and Gynecology of the University of Michigan Hospital has disclosed a need for greater clarification in the management of the gynecologic patient. The abuse of endocrine therapy prior to adequate diagnosis is illustrated in the cases reported here and summarized in the table.

REPORT OF CASES

CASE 1.—A married nulliparous woman aged 23 gave a history of normal menstrual periods until five months prior to admittance. She reported intermittent, bright red vaginal bleeding for one month previous to the institution of diethylstilbestrol therapy. She had passed no tissue but soiled one to two pads daily throughout a four month period of endocrine

Sample Cases in Which Endocrine Therapy Was Improperly Used

Incorrect Diagnosis	Hormone Preparation Used	Correct Diagnosis
1. Functional bleeding.....	Diethylstilbestrol for 4 months	Incomplete abortion
2. Menopausal bleeding....	Diethylstilbestrol for 6 months	Far advanced carcinoma of cervix
3. Sterility.....	Pregnant mare's serum	Chronic pelvic inflammatory disease
4. Primary amenorrhea...	Chorionic gonadotropin for 2 years	Congenital absence of uterus and vagina
5. Secondary amenorrhea.	Diethylstilbestrol for 3 months; pralone	Arrhenoblastoma of ovary
6. Menopausal symptoms.	Diethylstilbestrol for 1 year	Thyroiditis
7. Hypermenorrhea.....	Estrogens, progesterone, pregnant mare's serum, testosterone	Hypothyroidism
8. Senile vaginitis.....	Diethylstilbestrol for 9 months	Carcinoma of vulva

treatment. Pelvic examination had not been made and the patient was referred to us with the diagnosis "functional bleeding."

Admittance pelvic examination revealed nothing unusual. The Aschheim-Zondek test was negative. Dilatation and curettage revealed necrotic chorionic and decidua tissue. Had a careful pelvic examination been performed or a biologic test for pregnancy been made at the onset of her trouble, prior to the institution of therapy four months earlier, the true diagnosis might have been arrived at and appropriate treatment instituted.

CASE 2.—A woman aged 42, tertipara, tertigravida, had been treated with 1 mg. of diethylstilbestrol daily for six months for what she was told was "menopausal bleeding." No pelvic examination had been made.

Examination on admittance revealed a far advanced squamous cell carcinoma, grade 3, of the cervix.

CASE 3.—A woman aged 30, nullipara, primigravida, giving a history of an infected instrumental abortion five years earlier, had been treated for sterility with weekly injections of pregnant mare's serum for one year prior to admittance to the University of Michigan Hospital. Her menstrual periods had always been normal.

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Pelvic examination revealed bilateral adnexal tenderness and thickening. Lipiodol uterosalpingography revealed bilateral tubal obstruction. Had the uterogram been performed one year earlier, the patient might have been spared considerable discomfort and expense. In this case tubal obstruction secondary to an old salpingitis was the most likely cause of her sterility.

CASE 4.—A woman aged 18, nullipara, nulligravida, received chorionic gonadotropin for two years in an attempt to bring on her menses. This had not occurred.

Examination on admittance, which was her first examination in years, revealed congenital absence of the uterus and vagina but normal development of secondary sex characteristics. An artificial vagina was constructed by Dr. Norman F. Miller. The patient was advised that while she would never bear children she could marry. Subsequent follow-up has shown her to be a well adjusted married young woman.

CASE 5.—A woman aged 18, nullipara, nulligravida, entered with the complaint of cessation of menses two months previously associated with deepening of the voice and generalized hirsutism. General physical examination, with the exception of the hirsutism, was negative. The masculinizing symptoms progressed, including enlargement of the clitoris. Laboratory studies, including basal metabolism tests, vaginal smears, endometrial biopsies and salt and water balance studies, all performed over a period of months, shed no light on the true diagnosis. Androgenic assay tests were not available at that time. The patient was placed on cyclic diethylstilbestrol-pranone therapy for three months without results.

Approximately one year after she was first seen she complained of severe constipation and a gradually enlarging abdomen. Pelvic examination at this time showed a grapefruit sized right ovarian neoplasm. An oophorectomy was performed and microscopic examination revealed a tumor of the arrhenoblastoma type. One month following removal of the tumor a normal menstrual period occurred, her first since the onset of symptoms. Periods have continued regularly over a period of two years. Masculinizing symptoms have decreased to some extent.

In this case, had frequent pelvic examinations been performed, no doubt the diagnosis would have been made earlier and both the patient and her physicians spared considerable anguish.

CASE 6.—A woman aged 48, primipara, primigravida, who had passed her menopause three years previously, entered complaining of increased nervousness, palpitation, weight loss and hot flushes. These symptoms had been present for fifteen months. During much of that time she had received 0.5 mg. of diethylstilbestrol daily for what she was told was "change of life."

Physical examination showed a mild tremor of the fingers, a warm moist skin, slight exophthalmos and a palpably enlarged thyroid gland. The basal metabolic rate was plus 45 per cent. Thyroidectomy resulted in pronounced improvement of symptoms.

While there is some evidence to show that estrogens may have a suppressive effect on thyrotoxicosis, it is doubtful that diethylstilbestrol was given with this intent. More likely the true diagnosis had been overlooked.

CASE 7.—A woman aged 24, nullipara, nulligravida, entered complaining of excessive menstrual flow. Her menses had always been heavy, but for the previous four years they had lasted ten to twelve days and she saturated four to twelve pads daily. During this time she had received estrogens, progesterone, testosterone and gonadotropins without lasting improvement. In addition she had received three blood transfusions, vitamin K, intramuscular liver extracts and iron preparations. The history revealed in addition that she was *droovy* much of the time, had a poor appetite and seldom perspired.

Admittance physical examination showed that she was thin and apathetic and that her skin and hair were dry. Her hemoglobin was 55 per cent. The basal metabolic rate was minus 30 per cent. Estrogen and gonadotropin assays were within

normal limits. The patient was placed on thyroid, the dosage being controlled by clinical response and basal metabolism tests. After three months her periods became normal and her general condition improved. At present she takes 2 grains (0.13 Gm.) of thyroid daily and has basal metabolism tests twice a year.

CASE 8.—A parous woman aged 76 was admitted with the complaint of pain in her groin, which had become progressively worse during the previous nine months. She had been using various ointments locally and had intramuscular injections of an estrogenic preparation twice weekly during that time, without relief. Morphine was finally resorted to when the pain became intractable. The patient had previously refused pelvic examinations.

On admittance pelvic examination revealed a large fungating mass which had replaced the vulva and invaded the vaginal canal. Bilateral enlarged inguinal nodes were present. Because of the advanced stage of the neoplasm a simple vulvectomy was performed as a palliative measure. This resulted in considerable relief of pain. Histologically the neoplasm proved to be a grade 2 squamous cell carcinoma of the vulva. If this patient had submitted to pelvic examination earlier, complete surgical extirpation might have been possible.

COMMENT

The great strides which have been made in understanding the internal secretions of the gonads has led to overzealousness on the part of some physicians, with the result that almost any abnormality of the female generative tract may be interpreted as being due to an endocrine imbalance. Unless carcinoma, inflammatory disease, complications of pregnancy and systemic diseases are carefully ruled out, grave errors in therapy may result.

Carefully taken histories and thorough physical examinations are essential. Diagnostic laboratory tests should include urinalysis, blood counts and careful microscopic examination of biopsy material. Biologic tests for pregnancy and metabolism tests may also be of value. What at first may appear to be a functional disturbance may, after careful investigation, be found to have a different cause.

The various laboratory procedures used to determine the status of the endocrine glands may be of value in selected cases but should not be relied on to the exclusion of the time tried diagnostic measures that have been enumerated.

No attempt has been made to discuss the proper use of endocrine preparations in the field of gynecology. There is a place for them, but their use should be restricted to those cases in which the diagnosis of an endocrine disturbance has been clearly established.

SUMMARY

1. A group of cases was encountered which showed how incomplete diagnostic studies may lead to improper treatment.
2. Endocrine preparations are frequently used unjustifiably because of the current focus on endocrine imbalance as a cause of symptoms referable to the female generative tract.
3. Resort to time tried diagnostic measures might have resulted in earlier disclosure of the true diagnosis in the 8 cases studied.
4. Sex hormone excretion studies may be helpful in selected cases.
5. Endocrine therapy has a definite but limited place in gynecologic practice.

CHRONIC HYPOCHLOREMIA SIMULATING PSYCHONEUROSIS

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Under conditions of sustained heat, as in the tropics, fluctuations of the level of the blood chlorides are likely to occur. Prolonged exposure to heat associated with physical activity will lead to salt depletion and diminution of blood chlorides.¹ If such deficiency is not made up and restoration of blood chlorides does not take place, symptoms of salt deficiency become manifest.

The symptoms of heat exhaustion due to salt deficiency are described as pronounced weakness, dizziness, stupor, pallor, profuse perspiration, diminution of urine, acceleration of pulse rate and respiration, lowering of blood pressure, and occasional cramping pains in the muscles of the abdomen and extremities (heat cramps).² The onset is usually sudden and not necessarily associated with exertion.

The diagnosis of heat exhaustion due to salt deficiency hardly presents difficulties as long as such a clinical picture is kept in mind. A determination of blood chlorides would seem unnecessary, as the rapid response to administration of salt makes the diagnosis obvious.

However, if salt depletion and loss of chlorides is less rapid and more protracted, the acute symptoms of salt deficiency may be less evident and may be modified to such an extent as to present diagnostic difficulties. The resulting clinical picture may be confusing and difficult to interpret.

It is my purpose in this paper to present briefly 10 cases of chronic hypochloremia that offered a striking resemblance to psychoneurosis. In none of the cases did the diagnosis become apparent until blood chloride determinations were done. In all cases there was prompt relief of symptoms on restoration of their blood chloride level to normal.

BLOOD CHLORIDE DETERMINATIONS

Blood chloride determinations were performed according to Army standard methods (Whitehorn).³ Numerous determinations revealed a normal range of from 400 to 500 mg. of sodium chloride per hundred cubic centimeters of whole blood, which is equivalent to 68.4 to 85.5 milliequivalents per liter.

REPORT OF CASES

CASE 1.—A private aged 24 was admitted on May 5, 1944 with the following note from his battalion surgeon: "I have observed Pvt. — for a number of weeks and cannot come to any definite conclusion. His complaints are vague—weakness, lassitude, general pains here and there. . . . He has never had elevation of temperature. I doubt if there is any psychoneurosis involved and suspect some amount of exaggeration and malingering. . . ."

The patient appeared well nourished, nervous and apprehensive. He had been overseas for twenty-two months, most of which time was spent in the tropics. He complained of general weakness and easy fatigability. He felt quite irritable and depressed without apparent cause. He had been taking an unspecified number of salt tablets irregularly.

Technician 5th Grade Ralph F. Hirschmann, Medical Department, performed the blood chloride determinations.

1. Miller, Michael; Silverman, M.; Jacob, J., and Powell, V. E.: Failure of the Sweat Mechanism in the Desert. J. A. M. A. 124:1152 (April 15) 1944.

2. Cecil, L. R.: A Textbook of Medicine, ed. 6, Philadelphia, W. B. Saunders Company, 1944.

3. Methods for Laboratory Technicians, United States War Department Technical Manual 8-227, Washington, D. C., Government Printing Office, Oct. 17, 1941.

Physical examination revealed a moderate tremor of the hands and exaggerated tendon reflexes. There were no other significant physical findings. The blood pressure was 120/70. Blood counts, malaria smears, urine analysis and chest x-ray examination were all normal. A blood chloride determination revealed a value of 363 mg. per hundred cubic centimeters.

The patient was given a high caloric diet with vitamin supplements and 60 grains (4 Gm.) of sodium chloride daily. A week later blood chlorides had risen to 411 mg. per hundred cubic centimeters. The patient felt fine and elated about the disappearance of the distressing symptoms. He was discharged to duty ten days after hospital admission.

CASE 2.—A private aged 29, admitted on May 1, 1944, had been in the tropics for the past eleven months and had been well able to participate in all the physical activities required until about one month prior to hospital admission. At that time he became aware of loss of strength and appetite. Epigastric distress without relation to meals, mild nausea and a sensation of fullness were present. The symptoms gradually increased in intensity so that hospitalization became necessary.

Physical examination revealed that the patient was fairly well developed and did not appear acutely ill. There was vague and mild epigastric tenderness without any other significant physical findings. A gastrointestinal x-ray study was entirely negative. Gastric analysis revealed a fasting value of 0 free and 8 total acidity, one hour after a test meal 42 free and 52 total acidity. Three stool specimens were free from occult blood, ova and parasites. Blood counts, urine analysis and malaria smears were all normal. A blood chloride determination revealed a value of 366 mg. per hundred cubic centimeters.

The patient was given a regular diet with vitamin supplements and 60 grains (4 Gm.) of sodium chloride daily. He improved rapidly. After five days the blood chlorides had risen to 400 mg. per hundred cubic centimeters. The symptoms subsided and the patient was discharged to duty.

CASE 3.—A corporal aged 20, admitted on May 9, 1944, had been overseas for only three weeks. While he had had some vague, intermittent dyspeptic symptoms for many months there had been considerable aggravation since he had been overseas. There were epigastric, postprandial distress, nausea and anorexia. There were increasingly severe nervousness, apprehension, depression and insomnia.

Physical examination revealed that the patient was well developed and that the blood pressure was 110/70. There were moderate tremor, exaggeration of tendon reflexes and mild diffuse epigastric tenderness. No other significant physical findings were present.

Urine analysis, blood counts, malaria smears and stool examinations for occult blood, ova and parasites were all normal. Gastric analysis revealed a fasting acidity of 28 free and 38 total, one hour after a test meal 36 free and 42 total acidity. A blood chloride determination revealed a value of 363 mg. per hundred cubic centimeters.

Sixty grains (4 Gm.) of sodium chloride daily together with rest, a full diet and vitamin supplements was followed by pronounced improvement, and the patient was discharged to duty eight days after admission.

CASE 4.—A corporal aged 27, admitted on May 9, 1944, for several weeks past had noticed increasingly severe epigastric distress, nausea and occasional vomiting. There was postprandial aggravation of symptoms. Simultaneously there were loss of pep and strength, frequent headaches, nervousness and irritability. There were spells of depression and moodiness.

Physical examination revealed mild tremor, hyperreflexia and moderate midepigastric tenderness. The blood pressure was 140/80. Urine analysis, blood counts, malaria smears and three stool specimens were negative throughout. Gastric analysis revealed a fasting value of 40 free and 50 total acidity, one hour after a test meal 73 free and 82 total acidity. The value for blood chlorides was 366 mg. per hundred cubic centimeters. The same regimen as in previous cases was instituted. One week later the blood chlorides had risen to 420 mg. per hundred cubic centimeters. The patient felt well and symptoms had subsided. He was returned to duty eleven days after admission.

CASE 5.—A private aged 19, admitted on May 22, 1944, had always felt well until he arrived overseas four weeks before.

For the past three weeks he had noticed upper abdominal cramping distress aggravated by work but not related to food intake. There was no vomiting, and the appetite remained good. The patient had not been taking salt tablets regularly and stated that he had been perspiring freely.

Physical examination disclosed that the patient was well nourished; he was apprehensive, with moderate tremor and hyperreflexia. The abdomen was soft and the viscera were not palpable. There was mild upper abdominal tenderness. The blood pressure was 125/70. Laboratory findings were negative in regard to blood counts, urine analysis, malaria smears and stool examinations. Gastric aspiration revealed a fasting value of 4 free and 8 total acidity, one hour after a test meal 20 free and 30 total acidity. The blood chlorides were 370 mg. per hundred cubic centimeters. Regular diet, multivitamins and 60 grains (4 Gm.) of sodium chloride daily were given. The patient improved rapidly. In one week the blood chlorides had risen to 410 mg. per hundred cubic centimeters and the patient was returned to duty free from symptoms sixteen days after hospital admission.

CASE 6.—A technical sergeant aged 30, admitted on May 27, 1944 with a tentative diagnosis of peptic ulcer, had an overseas stay of three months. For the past four weeks there was epigastric burning distress without relation to food intake. There were frequent vomiting, anorexia and nausea associated with headaches and dizziness. There was weakness and some prostration.

Physical examination disclosed that the patient was apprehensive and in a fair state of nutrition. There were moderate tremor, hyperreflexia and dermatographism. The abdomen was flat and soft. The viscera were not palpable. There was mild diffuse epigastric tenderness. Blood counts, urine and stool examinations and malaria smears were negative. Gastric analysis showed a fasting value of 50 free and 58 total acidity, one hour after a test meal 16 free and 26 total acidity. The value for blood chlorides was 370 mg. per hundred cubic centimeters. Rapid improvement followed proper salt medication. The blood chlorides rose to 425 mg. per hundred cubic centimeters within a week and the patient was discharged to duty free from symptoms and feeling well.

CASE 7.—A technician aged 32, admitted on June 1, 1944, had been overseas for one and one-half years, most of which time was spent in the tropics. For the past six months he had become increasingly nervous. He felt unable to concentrate on any task and consequently could not carry out orders satisfactorily. This in turn made him depressed and blue. He began to worry and exhibited a behavior suggestive of intense anxiety, according to the accompanying statement of the referring battalion surgeon.

The patient complained of headaches and nervousness and appeared in a state of tension and depression. There were no significant physical findings. Laboratory tests including blood counts, sedimentation rate, urine analysis, stool examinations and malaria smears were not contributory. A chest x-ray was negative. The blood chlorides were 365 mg. per hundred cubic centimeters.

Sodium chloride 2.5 Gm. three times a day was given. The patient improved gradually and progressively. After nine days the blood chlorides had risen to 415 mg. per hundred cubic centimeters. The patient was returned to duty fourteen days after admission, feeling fine and free from symptoms.

CASE 8.—A private aged 24, admitted on Aug. 3, 1944, had spent most of his twenty-three months overseas service in tropical theaters of operation. For the past few weeks he had suffered from increasingly severe headaches, nausea, anorexia and weakness. He felt depressed and irritable. A sudden aggravation of the condition occurred one day prior to hospital admission when the patient was working hard with little food and much perspiration. He felt extremely weak and dizzy and had to stop working. He had taken salt tablets rarely and irregularly.

Examination revealed moderate dehydration, some tremor and hyperreflexia. The blood pressure was 120/82. No other significant findings were obtained. Urine, stools, malaria smears and blood counts were negative. Fasting gastric aspiration disclosed a value of 0 free and 9 total acidity, one hour after a

test meal 32 free and 42 total acidity. The blood chlorides were 363 mg. per hundred cubic centimeters.

Salt tablets, 20 grains (1.3 Gm.) three times a day, were administered, together with vitamin supplements and a regular diet. Rapid recovery took place. The blood chlorides rose to 403 mg. per hundred cubic centimeters within a few days and the patient was returned to duty six days after admission, feeling well and free from symptoms.

CASE 9.—A private aged 23, admitted on Sept. 8, 1944, had been overseas for five months and felt well until six weeks before, when he gradually developed headaches, insomnia and dizziness. He felt progressively worse, had "blue spells" and "hot flushes" and became quite irritable and depressed. He vomited occasionally and felt increasingly nervous. At times he became quite fearful as if disaster were impending. He was unable to remain on duty status and was hospitalized.

Physical examination failed to disclose significant findings. Blood counts, sedimentation rate, Kahn test, urine analysis and malaria smears were all normal. Fasting gastric acidity was 0 free and 10 total acidity, one hour after a test meal 21 free and 30 total acidity. The blood chlorides were 370 mg. per hundred cubic centimeters.

Salt tablets 20 grains (1.3 Gm.) three times a day, vitamins, regular diet and rest were given. The patient improved rapidly. Headaches and psychoneurotic manifestations subsided and the patient was returned to duty eighteen days after admission with a blood chloride level of 420 mg. per hundred cubic centimeters.

CASE 10.—A private aged 25, admitted on Nov. 5, 1944, had been overseas for thirty-one months, most of which time was spent in tropical theaters of operation. For the past several months he had felt increasingly nervous and irritable. He had spells of palpitation and dyspnea associated with dizziness and extreme weakness.

Examination disclosed that the patient was fearful and apprehensive, with considerable tremor, hyperreflexia and hyperhidrosis. The heart action was rapid and forceful without enlargement or murmurs. The blood pressure was 160/102. Urine analysis, blood counts, malaria smear and a chest x-ray were all normal. The fasting gastric content revealed 0 free and 9 total acidity, one hour after a test meal 35 free and 44 total acidity. The value for blood chlorides was 380 mg. per hundred cubic centimeters.

Rest, regular diet, multivitamins and sodium chloride 60 grains (4 Gm.) daily were administered. Considerable improvement of the distressing symptoms took place and the blood chlorides rose to 440 mg. per hundred cubic centimeters. However, the blood pressure remained high and the patient was therefore evacuated.

COMMENT

An analysis of these cases reveals that chronic hypochloremia can give rise to a variety of symptoms. These symptoms may be divided into two groups, one related to the intestinal tract, the other to the nervous system. Intestinal symptoms were vague epigastric distress without definite relation to food intake, abdominal cramps, anorexia, frequent nausea and occasional vomiting. Symptoms related to the nervous system were headaches, dizziness, tremor, hyperreflexia, hyperhidrosis, nervousness, apprehension, restlessness, insomnia with loss of pep and strength, depression, personality changes and even frank anxiety.

Consequently all the patients were originally assumed to be suffering from a psychoneurosis. For even when the alimentary symptoms predominated, the absence of significant organic and laboratory findings led us to suspect the presence of a conversion psychoneurosis with psychosomatic manifestations of the intestinal tract.

It was only through determination of the blood chlorides that the true nature of the disorder became manifest. Rapid improvement of all "psychoneurotic" symptoms took place on restoration of the blood chloride level to normal.

Just what factors were responsible for the salt deficiency in these cases is not clear. It may be reasoned

that the patients had taken enough salt to prevent a sudden depletion of chloride stores with its typical picture of acute heat exhaustion. But they had not taken enough to prevent a gradually increasing chloride deficit. The history obtained from these patients appears to substantiate this assumption.

A noteworthy finding was the normal or even increased value (cases 6, 4) of gastric acidity. This may indicate that, in the face of impending salt deprivation, depletion of such sodium chloride stores as the subcutaneous tissue may take place long before the important function of gastric hydrochloric acid synthesis is interfered with. Sodium chloride balance studies might have shed some light on the mechanism involved in the breakdown of our patient's salt metabolism, but such studies were beyond the scope of this paper.

The length of tropical overseas service apparently had no bearing on the condition. One patient (3) was overseas only three weeks, another (patient 10) thirty-one months.

A recent report of the chief surgeon of the U. S. Army Forces in the Middle East⁴ deals in part with the effect of prolonged exposure to heat. The clinical entity described by him as "heat syndrome" bears some resemblance to the cases described herein. It is stressed that this heat syndrome has no relation whatever to heat stroke and heat prostration, which have been studied so thoroughly.

Finally, attention is called to the possibility that chronic hypochloremia may remain unrecognized if not specifically searched for. There seems little doubt that rest, a normal diet, diminution of physical activity and hidrosis will restore a previously low blood chloride level to normal without addition of salt tablets. Improvement of psychoneurotic symptoms may then be erroneously attributed to psychotherapeutic measures, and the true nature of the condition may remain obscure. The value of blood chloride determinations in such cases appears obvious.

SUMMARY AND CONCLUSIONS

- 1. Ten cases of chronic hypochloremia were observed.
- 2. The clinical symptomatology is vague and resembles a psychoneurosis with various psychosomatic manifestations related to the vasomotor system and the alimentary canal.
- 3. Prompt recovery took place on restoration of the blood chloride level to normal.
- 4. The importance of blood chloride determinations in differentiating psychoneurosis from chronic hypochloremia is evident.

Virus Infection in Childhood.—In childhood the effectiveness of response to infection increases, and there is hardly an exception to the rule that any infectious disease met for the first time will show a lower average severity in well nourished children of ages 6-12 than in any other age group. With some diseases the difference is striking: there is practically no mortality, in unprotected European children from yellow fever; clinical psittacosis is virtually unknown in this age group; and, in the 1918-19 pandemic of influenza, deaths in childhood were negligible in comparison with the high mortality in young adults. The relatively benign character of infection in the young is also evident in some other species, notably in regard to several protozoal diseases of cattle.—Burnet, Frank MacFarlane: *Virus as Organism*. Cambridge, Mass., Harvard University Press, 1945.

4. Sams, C. F.: Medical Problems in the Middle East, *Ann. Int. Med.* 21: 215 (Aug.) 1944.

WOMEN IN MEDICINE

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The question of the effectiveness of American women as physicians has reached the point where its clarification has become imperative. Dr. H. G. Weiskotten¹ shows that over the past twenty years American medical colleges have limited their registration of women to approximately 5 per cent of the total enrolment. Since

TABLE 1.—Number of Women Engaged in Medical Work

Medical College	Years Covered	Number of Women Graduates	In Full Time Medical Work		No. in Part Time Medical Work
			Number	Per Cent	
Columbia (P. & S.)...	1921-1940	1724	150	87	32
Cornell.....	1920-1939	1729	1614	94	2
Johns Hopkins.....	1921-1940	1867	1564	87	97
New York University..	1923-1940	1168	103	91	..
Univ. of Pennsylvania	1921-1940	1064	91	93	6
Woman's Medical.....	1921-1940	1470	397	89	..
Yale.....	1921-1940	59	55	91	2
Totals.....		1,240	1,115	90	

- 1. This excludes 2 who have died and for whom no information is available.
- 2. Two of whom returned to practice because of the war.
- 3. This excludes 3 who have died and for whom no information is available.
- 4. This includes 4 who have returned to practice because of the war.
- 5. This excludes 3 who have died and 2 Chinese for whom no information is available.
- 6. This includes 1 who has returned because of the war.
- 7. This includes 2 who have returned to practice because of the war.
- 8. This excludes 1 who has died and for whom no information is available.
- 9. This excludes 4 who have died and for whom no information is available.
- 10. This excludes 16 who have died and 3 with addresses in China, for whom no information is available.

TABLE 2.—Relation of Marriage to Subsequent Medical Activity

Medical College	Number of Married Graduates	Married Physicians in Full Time Medical Work	
		Number	Per Cent
Columbia.....	71	56	79
Cornell.....	49	86	87
Johns.....	71	51	70
New York Univ.....	11	11	81
Univ. of Penn.....	53	47	89
Woman's Medical.....	105	84	80
Yale University.....	37	33	89
Total.....	451	363	82

it is reported that English medical schools are currently admitting women to the extent of 20 per cent, the arguments leveled in this country against their admission seem to require reevaluation.

The chief of these arguments relies for its force on the statement that women marry and leave the profession, making it sheer waste to spend the large sums involved on their training. This contention is often bolstered with figures of doubtful authenticity culled from the speaker's immediate experience, some of them at least being related to those of the doctor who spoke of a class in which "50 per cent of the women dropped out" without explaining that only 2 women had entered.

The present study presents the results of an investigation undertaken to discover what use the women grad-

1. Weiskotten, H. G.: Forty-Second Annual Presentation of Educational Data by the Council on Medical Education and Hospitals, J. A. M. A. 119: 1263 (Aug. 25) 1942.

uates of seven representative Eastern medical colleges have made of their training. It covers the careers of the women who, in the eighteen or twenty years before 1940, graduated from the medical schools of Columbia, Cornell, Johns Hopkins, New York and Yale universities, the University of Pennsylvania and the Woman's Medical College of Pennsylvania.

TABLE 3.—Number of Specialists

Medical College	Total Number in Full Time Medical Work	Exclusive Specialists		Partial Specialists	
		Number	Per Cent	Number	Per Cent
Columbia.....	150	40	27	18	12
Cornell.....	161	50	31	30	19
Johns Hopkins.....	156	63	40	9	6
New York University.....	101	18	17	7	7
University of Pennsylvania.....	91	29	31	17	14
Woman's Medical.....	327	58	15	62	16
Yale University.....	55	15	27	6	12
Totals.....	1,115	273	24	85	8

research, teaching in medical colleges and institutional medicine. The information in the last column of the table was obtained from the questionnaires sent out in 1942 and shows that an additional 22 women are engaged in such part time work, often voluntary, as clinics, Red Cross blood banks, research projects and school and public health activities. Those physicians who have died and about whose activities no information is available have been omitted entirely from table 1 (29 cases). Those, however, who are known to have practiced until the time of their death (7 cases) as well as those who have retired after fifteen or twenty years of practice (4 cases) have been included in the active list.

Since these figures were obtained after the beginning of 1942 it might be inferred that the war is responsible for the high percentage of active women physicians. It may be pertinent therefore to emphasize the fact that the information in the directory would have been gathered too early to reflect the response of women to the war emergency. Replies to questionnaires have

TABLE 4.—Fields of Specialization

	Columbia P. & S.	Cornell	Johns Hopkins	New York University	Univ. of Penn- sylvania	Woman's Medical College	Yale University	Total
Allergy.....	1	1	..	..	1	4	..	6
Anesthesiology.....	1	2	..	..	..	3	..	6
Bacteriology.....	..	..	1	..	..	..	..	1
Clinical pathology.....	..	..	1	..	1	1	..	3
Dermatology.....	5	2	..	..	1	3	..	11
Gynecology.....	3	..	1	1	..	2	..	7
Internal medicine.....	6	6	6	2	4	6	3	33
Neurology.....	..	1	2	..	1	..	..	4
Obstetrics.....	..	..	..	..	..	2	..	2
Obstetrics and gynecology.....	1	4	..	5	3	7	1	23
Ophthalmology, otology, laryngology, rhinology.....	1	2	2	..	..	..	..	5
Ophthalmology.....	..	1	..	1	1	4	..	7
Orthopedic surgery.....	..	..	1	..	..	..	..	1
Pathology.....	4	2	2	..	1	2	1	12
Pediatrics.....	9	12	15	6	10	6	3	61
Psychiatry.....	5	9	15	1	2	7	3	42
Psychiatry and neurology.....	..	..	2	2	1	4	1	10
Public health.....	..	7	2	..	..	4	..	13
Radiology.....	1	1	1	..	2	1	..	6
Surgery.....	3	..	..	..	..	1	..	4
Tuberculosis.....	1	..	2	..	..	1	..	4
Urology.....	..	..	..	..	1	..	..	1
Total.....	40	50	63	18	29	58	15	273

Dean Martha Tracy² had already shown that the questionnaire method elicits only a limited response, 36 per cent in her case, after two trials. In the hope of making as complete a study as possible, the record of each graduate in the present group has been investigated, making use of the American Medical Directory for 1942 (the latest available) and of records in alumni and medical college administrative offices. If a graduate's name did not appear in the directory or was listed as "not in practice" a questionnaire was sent to learn whether she was listed under a married name or was using her medical training in any way. The information brought together in the accompanying tables is therefore chiefly as of 1942-1943, with occasional corrections from questionnaire replies. The total number of women whose records have been studied is 1,240, which according to Dr. Weiskotten is equal to about a third of the women graduated in the past eighteen years and to one sixth of the total number of women physicians registered in the entire United States in 1942.

The investigation shows that of these 1,240 women graduates 1,115 (90 per cent) were in 1942-1943 in full time medical work (table 1). For our purposes we have defined "full time medical work" to include, besides medical practice, public health work, medical

TABLE 5.—Professorial Appointments Held by Women Physicians

College from Which Degree Was Taken	Number with Professorial Rank	Medical Colleges to Which Appointed
Columbia (P. & S.).....	5	Columbia 4, U. of Cincinnati 1
Cornell.....	9	Columbia 1, Cornell 1, New York Univ. 2, Syracuse 1, Univ. of Illinois 1, Woman's Medical 1, Yale 2
Johns Hopkins.....	11	Columbia 1, New York Univ. 2, Univ. of California 1, Univ. of Illinois 1, Univ. of Wisconsin 1, Vanderbilt 2, Washington Univ. 1, Yale 2
New York Univ.....	2	New York Univ. 2
Univ. of Pennsylvania.....	5	Woman's Medical 5
Woman's Medical.....	17	Woman's Medical 13, New York Medical (Flower) 1, Ohio State 1, Temple 1, Univ. of California 1
Yale University.....	1	Columbia 1
Total.....	50	

shown that only 7 now included in the full time list, and 3 on the part time, returned to practice after the outbreak of the war. It has been impossible to include in the present report the responses to questionnaires sent to graduates of the Woman's Medical College. It should therefore be held in mind that their recorded percentage of activity is probably somewhat too low.

2. Tracy, Martha: *Bull. Am. Med. Coll.* 3: 327, 1928.

Since the major argument against the admission of women to medicine is predicated on the assumption that marriage automatically terminates their professional activities, the number of married women physicians has been investigated. It is a satisfaction to be able to report that 82 per cent of those who have married have remained in full time medical work (table 2). Since the overall activity is 90 per cent, this represents a comparatively small drop attributable to marriage. Furthermore, as it is the custom for many women to continue to use their maiden names in practice, and alumni records are not always complete in these cases, the number of married graduates has almost certainly been underestimated. As in the case of all married professional women, it is understood that short maternity leaves have been taken in some cases.

It is of course true that if women as a group are to justify their claim to a place in the medical profession, they must do more than practice. A just criterion for the measurement of the extent to which any group has made significant or distinguished contribution to the advancement of a science is not easy to find. One indication of such contribution on the part of this group is to be found in the number of specialists, another in the number who hold professional appointments in medical colleges.

The figures in table 3 show that 24 per cent of the total number of women engaged in full time medical work have taken enough advanced training to qualify as exclusive specialists, while a further 8 per cent combine partial specialization with general practice. The types of specialization chosen by the 273 women physicians who devote themselves to a single field are indicated in table 4. As might be expected, pediatrics leads with 24 per cent of the total, but psychiatry claims 15 per cent and internal medicine 12 per cent. It is perhaps surprising that obstetrics and gynecology together fall below these, with only 11 per cent representation. It would be interesting to know how much this distribution has been dictated by preference and how much by the relative ease of obtaining hospital appointments. In view of the difficulty in getting surgical internships for women, it is gratifying to find that at least 4 women in this group have persevered in this field. Of these one is now a surgeon in the British army, with the rank of major.

A further measure of accomplishment is to be found in the number of appointments from this group to professorial rank in approved medical colleges. The figures in table 5 all date back to 1942 and mean that in the face of a very considerable prejudice and competition 31 of the 50 women holding such appointments had made their way to positions on the faculty of coeducational medical colleges. It may be objected that this number is small, but in view of the obstacles to their advancement it seems large enough to carry some weight.

The evidence here presented indicates that women physicians as a group have amply justified their training and that marriage has had a negligible effect on their professional activities. They have in a high percentage of cases rendered active service to medicine, and a reasonable proportion of them have taken advanced training and entered a wide variety of special fields. On the basis of this record it would seem that American medical colleges might well consider accepting a higher percentage of women in the future.

Clinical Notes, Suggestions and New Instruments

A MODIFICATION OF HARRISON'S TEST FOR BILIRUBIN IN THE URINE ESPECIALLY SUITED FOR MASS AND SERIAL USAGE

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The increased incidence of infectious jaundice during the war has focused attention on the need for simple tests which will aid in the early detection of the disease and in following its course. The observation of Neefe and Stokes¹ that bilirubin may appear in the urine in cases of experimentally induced hepatitis before any elevation of the total serum bilirubin is observed is in itself indicative of the need of a simple sensitive and reliable procedure by means of which large numbers of urine samples can be examined rapidly for the presence of bilirubin. It is, of course, well known that the urine often becomes dark in cases of infectious hepatitis one or more days before the appearance of jaundice, and in some instances of hepatitis without jaundice the presence of dark urine for a short period of time early in the course of the disease may be the only evidence of jaundice in the broad sense of the term. That this is not a new observation is amply attested by the following passage from George Budd's treatise on "Diseases of the Liver" published in 1846:²

"The coloring matter of bile may be detected in this way in the urine even before the skin becomes yellow, and in some cases the redness with which it passes off in the urine seems to prevent the occurrence of jaundice—the skin retaining its natural color while the tint of the urine attests to the presence of bile."

Harrison³ employed 10 per cent barium chloride in carrying out the test for bilirubin which has come to be widely known as the Harrison test. In this procedure 10 cc. of urine and 10 cc. of the barium chloride solution are mixed, after which the voluminous precipitate of insoluble barium salts is filtered off on a small filter paper. Fouchet's reagent is then dropped on this precipitate and the characteristic green color of biliverdin is noted if bilirubin was present in the initial urine sample. According to Foord and Baisinger⁴ this method was as sensitive as any of a number of others with which it was compared and more sensitive and satisfactory than many. It was believed that this procedure, although relatively simple, might be simplified further to a point where it would be much more easily applied to mass usage, as in the armed services or in industries where it is desired to screen large numbers of personnel with respect to latent hepatic injury. With this objective in mind, the following technique has been devised and has been shown to be equivalent to the original Harrison method.

DESCRIPTION OF METHOD

A. Preparation of Barium Impregnated Paper Strips or Cotton Swabs.—Pieces of extra thick and retentive filter paper (Schleicher and Schuell number 470) are allowed to remain briefly in a saturated aqueous solution of barium chloride. They are then dried in the air or, preferably, in a drying oven, after which they are cut into strips 4 inches long by $\frac{1}{2}$ inch wide. A single strip is used for one test, as described in the following. If a suitable type of thick filter paper is not available, cotton swabs may be used, although the resulting test is not quite as sensitive and clearcut as with the filter strips.

Aided by a grant from the Josiah Macy Jr. Foundation, New York. From the Department of Medicine, University of Minnesota Hospital, Minneapolis.

1. Neefe, J. R.; Stokes, Joseph, Jr.; Reinhold, John G., and Lukens, F. D. W.: Hepatitis Due to the Injection of Homologous Blood Products in Human Volunteers, *J. Clin. Investigation* 22:1836, 1944.

2. Budd, G.: *Diseases of the Liver*, Philadelphia, Lea & Blanchard, 1846, p. 368.

3. Harrison, G. A.: *Chemical Methods in Clinical Medicine*, London, J. & A. Churchill, 1937.

4. Foord, A. G., and Baisinger, C. F.: Comparison of Tests for Bilirubin in Urine, *Am. J. Clin. Path.* 10:218, 1949.

The swabs are prepared on ordinary applicator sticks, the cotton having dimensions of about $1\frac{1}{2}$ inches by $\frac{1}{2}$ inch. These are dipped in the saturated aqueous solution of barium chloride and, after drying, are ready for use.

B. Procedure.—One end of a barium chloride impregnated thick filter strip is placed in the urine sample to be tested, the strip being in an approximately vertical position, at least one half extending above the surface of the sample. After standing in the urine for from thirty seconds up to two minutes the strip is withdrawn and placed on a piece of dry paper such as a paper towel or any other absorbent paper. Inspection of the filter strip will usually reveal somewhat more color in that area which corresponded to the surface of the urine. Two to three drops of Fouchet's reagent⁵ are then dropped directly on this area. A positive test is denoted by the appearance of a green color, varying in intensity with the amount of bilirubin present. With smaller amounts the color is often detected as a faint green line running across the strip.

When the cotton swab is used it is momentarily immersed in the urine to be tested. Excess urine is expressed from the swab by rolling it against the side of the container. Two to three drops of Fouchet's reagent are then dropped in the middle of the swab, a positive test being denoted as just described. In our experience the weaker reactions are less easy to interpret in that the reaction is over a larger area and hence more diffuse and not as clearcut as the line reaction observed with the filter strip method. Nevertheless the swab method has considerable usefulness when the proper type of filter paper is not available. To date the only paper that we have found suitable has been the S & S number 470, but it is quite possible that other varieties which we have not tried would be just as satisfactory.

In a number of instances a series of dilutions of bilirubin containing urines have been made to a point where the ordinary Harrison test was either questionable or absent. In each instance the results obtained with the present method were entirely comparable. Thus it is believed that the present filter strip method is at least equivalent to the original Harrison procedure.

It may be noted that barium has a peculiar virtue, possibly of catalytic nature, in this reaction. The test is not as sensitive when calcium chloride is used, although calcium salts appear to adsorb bilirubin from the urine just as efficiently as barium.

THE TREATMENT OF CARDIOVASCULAR SYPHILIS WITH PENICILLIN

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Several reports¹ have appeared dealing with the use of the penicillin salts in the treatment of early syphilis, benign late, early and late congenital syphilis and neurosyphilis since the original report of Mahoney, Arnold and Harris² in June 1943. Thus far there have been no available reports concerning the use of penicillin in cardiovascular syphilis.

Recently we have had occasion to study the effect of penicillin therapy on 2 patients with syphilitic aortitis and were forced to discontinue therapy in both because of the untoward effects

5. Fouchet's reagent is composed of 25 per cent trichloroacetic acid containing 0.9 per cent ferric chloride.

¹From the Department of Medicine, Northwestern University Medical School, and St. Luke's Hospital.

1. Stokes, J. H.; Sternberg, T. H.; Schwartz, W. H.; Mahoney, J. F.; Moore, J. E., and Wood, W. B.: The Action of Penicillin in Late Syphilis. *J. A. M. A.* **120**:73 (Sept. 9) 1944. Lentz, J. W.; Lueraham, N. R., and Stokes, J. H.: Penicillin in the Prevention and Treatment of Congenital Syphilis. *Ibid.* **126**:408 (Oct. 14) 1944. Nelson, R. A., and Duncan, L.: Acute Syphilitic Meningitis Treated with Penicillin. *Am. J. Syph., Gonorr. & Ven. Dis.* **29**:141 (March) 1945. Goldman, D.: Treatment of Neurosyphilis with Penicillin. *J. A. M. A.* **128**:274 (May 26) 1945. Moore, Mahoney, Schwartz, Sternberg and Wood.

2. Mahoney, J. F.; Arnold, D. C., and Harris, A.: Penicillin Treatment of Early Syphilis: A Preliminary Report. *Ven. Dis. Inform.* **24**:355 (Dec.) 1943.

noted. The present report seems in order because of the widespread interest in and the increasing usage of penicillin in the therapy of syphilis.

REPORT OF CASES

CASE 1.—R. C., a white man aged 56, came under our observation in December 1941, at which time he was admitted to the hospital because of cough and dyspnea associated with the onset of a severe upper respiratory infection. In 1903, at the age of 18, the patient had acute rheumatic fever. At this time he was told that he had a heart murmur. In 1908, at the age of 23, he had a penile sore and gonorrhea. He received syphilotherapy, arm and hip injections, at irregular intervals from 1908 to 1935. No treatment had been given since 1935, at which time he was told that his blood test was negative.

Physical examination on admission showed sticky rales throughout both lung fields; the blood pressure was 150 systolic and 90 diastolic. A 2 meter roentgenogram of the chest showed a transverse cardiac diameter of 17.5 cm., the heart occupying 52 per cent of the transverse diameter of the thorax. There was a grade 3, high pitched, blowing systolic murmur at the apex, a soft apical diastolic murmur and a harsh systolic murmur at the base of the heart. A Kahn quantitative blood test of 4 units was obtained, and the Hinton blood test was positive. The cerebrospinal fluid findings were normal, including a negative Kahn and Wassermann test. The patient was discharged symptom free on the fourteenth hospital day with a diagnosis of upper respiratory infection, acute bronchitis, rheumatic heart disease, mitral stenosis and insufficiency, aortic stenosis and late latent syphilis.

Between March 1942 and November 1942 the patient received thirty-eight weekly injections of 1.0 cc. of bismuth subsalicylate in oil intramuscularly. During this time he felt fairly well and had no complaints except exertional dyspnea. A Kahn blood test taken immediately after the bismuth therapy was negative. Periodic physical examinations during this interval demonstrated no essential changes in his findings except that an aortic diastolic murmur became evident.

On March 24, 1943 the patient was rehospitalized because of sharp, sticking pains in the left precordium associated with dyspnea. Physical findings were unchanged from those previously described. There was a definite aortic diastolic murmur present. The Kahn blood test was reported as doubtful positive. Two electrocardiograms were recorded during the course of this eight day hospital period, and no changes were noted from the previous tracings taken in December 1941, at which time there was a sinus rhythm, left axis deviation, inverted T₁, ₂, ₃, low T₄, M-shaped QRS₂, ₃ and depressed ST segments in leads 1 and 2.

In July 1943 the patient reentered the hospital for a period of six days because of an episode of vomiting, associated with burning precordial pain which radiated down both arms. Physical examination showed the blood pressure to be 124 systolic and 64 diastolic. A definite capillary pulsation was observed. The heart sounds were the same as previously recorded, and a roentgenogram of the chest showed a slight increase in the transverse diameter of the heart to 18.5 cm. The electrocardiogram was unchanged. Following this period the patient began to complain of precordial pain on effort. From July 1943 until September 1943 he received twelve weekly injections of 1.0 cc. of bismuth subsalicylate in oil.

In April 1944 the patient began to have increasing dyspnea. It was observed that his basal weight was increasing and his vital capacity on actual measurement had been slowly decreasing over the past year, going from 3,525 cu. cm. to 1,885 cu. cm. On April 22, 1944 he was hospitalized for treatment of congestive heart failure with pulmonary edema, ascites, serosal edema and edema of the extremities. On May 11, 1944 he was dismissed after digitalization and the use of diuretics. He was edema free at that time.

He was well throughout the summer of 1944. At rare intervals precordial pain ensued following strenuous effort. Several things should be noted during this interval. The Kahn quantitative blood test remained consistently at the level of 4 units. There seemed to be an increasing prominence of the ascending limb of the aorta on repeated fluoro-copy of the chest. He had received no anti-syphilitic therapy since September 1943.

It was at this juncture that reports began to appear on penicillin as a therapeutic agent for syphilis. It was our feeling that this man had an active syphilitic aortitis and that his life expectancy, in view of his recent congestive heart failure, was definitely limited. It was felt that arsenicals were contraindicated because of the suggestive evidence of coronary artery involvement as evidenced by effort angina. On Sept. 21, 1944 he was hospitalized and an attempt was made to treat the syphilitic aortitis with penicillin. A 2 meter roentgenogram of the chest and fluoroscopy showed no change in the heart size or lung fields since the last preceding examination on April 25, 1944. The blood pressure was 110-120 systolic and 60-80 diastolic in both arms. There were harsh apical and basal systolic and diastolic murmurs over the precordium. On September 23 he was given 10,000 units of sodium penicillin in distilled water intramuscularly. No untoward effects occurred, and on September 24 he received the same dosage without reaction. On the morning of September 25, 20,000 units of penicillin was administered intramuscularly. During the day the patient noted four episodes of anginal pain, each relieved by erythrol tetranitrate. These were similar to those previously experienced by the patient but occurred at bed rest in contradistinction to previous anginal pain occurring on effort. A second dose of 20,000 units of penicillin was given in the afternoon of the same day. On September 26 the patient received 60,000 units intramuscularly in three doses. He developed seven episodes of anginal pain and a sense of heart consciousness. On the following morning numerous extrasystoles were heard and confirmed electrocardiographically as being premature ventricular extrasystoles. Further penicillin therapy was discontinued. The extrasystoles were not in evidence when electrocardiograms and examination were performed two days and three, six and twelve weeks later. A quantitative Kahn blood test on November 20 was reported as 3 units.

Case 2.—T. G., a white man aged 56, admitted to the hospital on April 27, 1945, had an acute infection of the upper respiratory tract five days prior to admission, associated with nasal discharge and productive cough, which became progressively more severe. On the day prior to admission he began to have soreness of the throat, swelling of the neck, dysphagia and a cough productive of thick white mucus. The inventory by systems was negative except for 10 pounds recent weight loss and occasional joint pains. His past history included scarlet fever in 1911, typhoid in 1913, right herniorrhaphy in 1936 and excessive alcohol intake for twenty years. He stated that he had a penile sore in 1915 but stated that he did not have any knowledge that the lesion was syphilitic or that he had received any specific therapy.

On physical examination the temperature was 100.2 F. Both pupils were fixed to light. The tongue was swollen, red and tender. The posterior pharynx was slightly reddened and the anterior cervical glands were enlarged and tender. The heart was enlarged to the left. There was a systolic murmur audible at the apex and base and a diastolic murmur present at the base. The blood pressure was 140 systolic and 50-60 diastolic. The lung fields were clear, the liver palpable 5.0 cm. below the right costal margin in the midclavicular line. The remainder of the abdominal examination was negative. The patellar and achilles reflexes were absent. The clinical diagnosis was acute lingual tonsillitis, syphilitic aortitis and tabes dorsalis. A roentgenogram of the chest showed normal lung fields and a heart of aortic configuration with some enlargement. An electrocardiogram showed sinus rhythm, inverted T waves in all limb leads and left axis deviation. Laboratory examination on admission revealed hemoglobin 12.2 Gm., red blood cells 3.68 million, white blood cells 27,650, differential 83 per cent polymorphonuclears, 7 lymphocytes, 2 monocytes and 8 basophils. The sedimentation rate was 26 mm. in one hour. The urine was normal. A Kahn blood test was negative. The cerebrospinal fluid obtained on May 3 showed a strongly positive Wassermann reaction, 4 lymphocytes, 35 mg. total protein per hundred cubic centimeters and a colloidal gold curve of 0012200000. A throat culture was taken but was not satisfactory.

The patient was begun on sodium penicillin shortly after admission, receiving 20,000 units every two hours intramuscularly. His clinical response was satisfactory, the temperature and white blood cell count returning to normal on the third

hospital day, with rapid subsidence of the edema and soreness of the throat. He received a total of 700,000 units of penicillin from April 27 through April 30, 1945.

On April 30 he began to complain of intermittent precordial pain during the day, which by evening was moderately intense, and the penicillin therapy was discontinued. The precordial pain had ceased by the following morning. The infectious process in the throat having subsided uneventfully, the patient was dismissed on the seventh hospital day.

The patient's medical record, obtained from his previous physician, showed that he was first seen in 1936, at which time he had fixed pupils, absent patellar and achilles reflexes, a blood pressure of 145/60 and a systolic and diastolic murmur at the apex and base. The blood Wassermann and Kahn reactions were strongly positive. A diagnosis of central nervous system syphilis and syphilitic aortitis was made at this time. He received intermittent treatment consisting of bismuth, potassium iodide and neoarsphenamine for a period of three years until April 1939, when he failed to return. It was noted several times in 1938 and 1939 that the patient complained of precordial pain radiating down both arms, occurring on effort, which was relieved by rest. This was during the period when he was being given neoarsphenamine. He did not experience any recent precordial distress until that described during the penicillin therapy.

COMMENT

Wilson³ recorded 5 cases of late syphilis of the aorta in which conspicuous changes in the electrocardiogram developed after the administration of arsphenamine and related compounds. Tung and Mu,⁴ in an electrocardiographic study of 22 patients suffering from syphilitic aortitis with aortic insufficiency, found that significant changes in the ventricular complex of the electrocardiogram occurred in 2 cases and minor alterations in 5 cases within a few hours after the injection of neoarsphenamine.

Wilson advanced two possible explanations of the electrocardiographic changes observed after treatment. The first assumed that soon after intravenous therapy there occurred a reaction in the syphilitic aortic lesions at the mouths of the coronary arteries, or a replacement of the active lesion by scar tissue. The second explanation, which was preferred by Wilson, assumed that the effect of the arsphenamine therapy on the myocardial syphilomas may affect the integrity of the heart by interfering with the circulation locally. Tung and Mu thought that, since syphilis of the myocardium is rare and since the changes observed by them were similar to those observed in other cases of coronary artery disease, these changes were caused by a reaction in the syphilitic aortic lesions, with resultant encroachment on the coronary artery ostia. They thought that the fact that the electrocardiographic changes occurred almost immediately after treatment precluded the possibility of replacement by scar tissue as the cause in their cases.

It has been shown that there is a rapid involution of syphilitic lesions that may be observed under penicillin therapy, both of the early lesions and of the cutaneous gumma variety.⁵ While⁶ recently commented that he objected to the suggested use of penicillin in cardiovascular syphilis because of the likelihood of the type of reaction herein described taking place. He stated that he always felt that when cardiovascular syphilis reached a clinical horizon it should never be treated by intensive methods, for it is in such cases that one not infrequently sees a therapeutic paradox. In these instances we were forced to discontinue penicillin therapy in patients with cardiovascular syphilis because of the untoward effects. This is a preliminary report; other patients are now under investigation.

122 South Michigan Avenue.

3. Wilson, F. N.: Changes in the Electrocardiogram Following Arsphenamine Treatment of Cardiac and Aortic Syphilis. New York, International Press, 1932.

4. Tung, C. L., and Mu, J. W.: The Immediate Effects of the Intravenous Administration of Neoarsphenamine on the Electrocardiogram in Cases of Syphilitic Aortitis. *Ann. Intern. Med.* 101:329 (May) 1940.

5. Mouge, J. E.; Mahoney, J. F.; Schwartz, W.; Sternberg, T., and Wood, W. B.: The Treatment of Early Syphilis with Penicillin: A Preliminary Report of 1,418 Cases. *J. A. M. A.* 120:167 (Sept. 9) 1944. O'Leary, P. A.: Penicillin in the Treatment of Late Cutaneous Syphilis: Report of a Case. *Proc. Staff Meet., Mayo Clin.* 10:20 (Jan. 13) 1944.

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Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., Secretary.

INTOCOSTRIN.—A curare preparation containing therapeutically desirable constituents of curare.

Actions and Uses.—Intocostein has been shown by physiologic tests to have a substantially pure curare action; that is, it paralyzes the skeletal muscles. This paralysis results from an interruption of the nerve impulse at the myoneural junction. The diaphragm and intercostal muscles are usually the last to be affected. The action of the drug is brief because of rapid excretion and destruction. If respiration is embarrassed or arrested, neostigmine, a physiologic antidote, will assist in counteracting the curare effect, but properly instituted artificial respiration may be necessary to maintain respiration until the curare effect has diminished. The curare activity in intoxicostein is due almost wholly to the presence of an alkaloid, d-tubocurarine, which accounts for about half the total solids in intoxicostein. This alkaloid has been isolated as a pure crystalline salt. Intocostein may be used to soften the severity of convulsions and to prevent fractures in shock therapy of mental diseases; to produce muscular relaxation during the reduction of fractures or dislocations, or during certain manipulative diagnostic procedures; to produce a more or less transient reduction of hypertonia, tremor, incoordination, athetosis and dysarthria in certain neurologic conditions and, with certain precautions, to aid in the diagnosis of myasthenia gravis.

Intocostein can be used by those experienced in such use as an adjuvant to anesthesia. *The drug is not, however, without its dangers.* Overdosage produces paralysis of the respiratory muscles. Experimental work on dogs indicates the possibility of added toxic effects following the use of large doses of atropine with curare. Clinically, however, no difficulty has been encountered with therapeutic doses of belladonna alkaloids, and it is claimed that such premedication is desirable. The value of intoxicostein in anesthesia is the development of adequate muscular relaxation. It is claimed that the amount of anesthetic and depth of anesthesia may be decreased.

Dosage.—In softening the convulsions of shock therapy or to produce relaxation in manipulative procedures: 0.5 unit per pound of body weight (but the initial dose for adults should be 20 units less than this total), administered intravenously at a uniform rate during one to one and one-half minutes. Larger doses may be necessary, but if the estimated dose fails to produce paralysis another full paralyzing dose should not be given for twenty-four hours. Preparations should always be made to cope with respiratory failure. Neostigmine, 2 cc. of 1:2,000, should be at hand for intravenous injection if required, and an airflow should be available on the tray to assist in artificial respiration in the event of obstructed breathing. In spastic and athetoid states in children: 0.5 to 1.5 units per pound of body weight administered intramuscularly at four day intervals. As a diagnostic agent in myasthenia gravis: one fifteenth to one fifth of the average adult dose, intravenously followed always in two or three minutes by the intravenous injection of 1.5 mg. of neostigmine methylsulfate with 0.65 mg. of atropine sulfate.

In order to obtain muscular relaxation during light (second plane) anesthesia with cyclopropane, nitrous oxide or barbiturates, 40 to 60 units of intoxicostein may be administered when the skin incision is made: 20 to 30 units may be added in three to five minutes, if needed. If the operation has lasted more than forty-five minutes, an additional dose of 30 to 40 units may be cautiously administered if such additional dosage seems indicated. In an alternative method as much as 100 units has been administered in a single intravenous injection at the beginning of or during anesthesia, but no additional quantities should be given following this large dose until some time has elapsed and then extreme caution exercised. The drug apparently may be used with any type of anesthetic agent, *although with ether only about one third of the dose otherwise employed should be used.* It must be remembered, however, that the use of intoxicostein as an adjuvant to surgical anesthesia is still in a stage which requires continued careful study.

Curare has been extensively used with sodium pentothal anesthesia, usually by separate injection. If a barbiturate solution (alkaline) is mixed with intoxicostein solution (acid) a precipitate is formed, which is redissolved when a sufficient amount of the barbiturate with its buffer has been added. The precipitate is the free barbituric acid derivative. If an intoxicostein solution is alkalinized with sodium carbonate, no loss in potency occurs during a twenty-four hour period and no precipitate forms when the alkalinized solution is mixed in any quantity with a barbiturate solution. Such mixtures have not been used clinically; the present method is to inject the solution separately and alternately through a Y-tube using the same needle. When by this method intoxicostein follows the barbiturate, a slight fine precipitate forms at the surface of contact of the two solutions. It has been the custom to allow such a precipitate to be injected slowly, as it presumably redissolves on mixing with the plasma.

Preparation.

Intocostein prepared from *Chondodendron tomentosum* extract is made by first extracting with alcohol a desiccated curare obtained from a heavy syrup of the bark and stems of *Chondodendron tomentosum*. The alcoholic extract is evaporated to dryness; a sterile filtered solution having a pH of 4.6-4.8 is made and adjusted to a standard potency of 20 units per cubic centimeter. The final solution contains sodium chloride 0.45 per cent and trichlorobutanol 0.5 per cent; sterilized by filtration and its pH again adjusted to 4.6-4.8.

In the preparation of intoxicostein from pure d-tubocurarine chloride crystals, the crystals are obtained from the desiccated curare or from the crude syrup.

Tests and Standards.

Dilute in a large pyrex test tube 0.25 cc. of intoxicostein with 25 cc. of distilled water and add 0.2 cc. of concentrated sulfuric acid and 2 cc. of 1 per cent potassium iodate solution. Mix and warm in a water bath at 50 C. for one-half hour. A yellow color is developed.

The physiologic activity of intoxicostein is determined on rabbits: the provisional unit is equivalent to the potency of 0.15 mg. of d-tubocurarine chloride.

E. R. SQUIBB & SONS, NEW YORK

Intocostein Solution: 10 cc. vials. Each cubic centimeter contains an amount of intoxicostein equivalent to 20 units: sodium chloride 0.45 per cent and chlorobutanol 0.5 per cent as a preservative.

NIKETHAMIDE (See New and Nonofficial Remedies, 1944, p. 330).

The following dosage form has been accepted:

GEORGE A. BREON & Co., KANSAS CITY, Mo.

Sterile Solution Nikethamide 25% W/V: 1½ cc. ampuls.

SULFADIAZINE (See New and Nonofficial Remedies, 1944, p. 178).

The following dosage form has been accepted:

AMERICAN PHARMACEUTICAL Co., INC., NEW YORK

Tablets Sulfadiazine: 0.5 Gm.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1944, p. 417).

The following additional dosage forms have been accepted:

GEORGE A. BREON & Co., KANSAS CITY, Mo.

Tablets Diethylstilbestrol: 5.0 mg.

Caplets Diethylstilbestrol: 5.0 mg.

PENICILLIN (See Supplement to New and Nonofficial Remedies, 1944, p. 18).

The following dosage form has been accepted:

SMITH-DORSEY COMPANY, LINCOLN, NEB.

Penicillin (Sodium Salt): 100,000 Oxford unit vials and 100,000 Oxford unit vials packaged with an accompanying 20 cc. vial of isotonic solution of sodium chloride.

CHAS. PFIZER & Co., INC., BROOKLYN

Penicillin Calcium: 200,000 Oxford Unit bottles.

SULFANILAMIDE (See New and Nonofficial Remedies, 1944, p. 184).

The following additional dosage form has been accepted:

THE SMITH-DORSEY Co., LINCOLN, NEB.

Sulfanilamide (Powder): 5 Gm. vials.

SULFATHIAZOLE (See New and Nonofficial Remedies, 1944, p. 191).

The following additional dosage form has been accepted:

THE SMITH-DORSEY Co., LINCOLN, NEB.

Sulfathiazole (Powder): 5 Gm. vials.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 13, 1945

Several issues of The Journal have been delayed because of a strike of compositors. The negotiations have been successful and the delayed issues of The Journal will be sent to subscribers as rapidly as possible.

VIRUS DYSENTERY

In 1942 Baker¹ of the Rockefeller Institute, Princeton, N. J., isolated and described a filtrable virus which he believed was the cause of "scours" (pneumoenteritis) in cattle. This disease is recognized by fever, diarrhea and pneumonia; calves less than 1 month of age are particularly susceptible. While the death rate is usually low, the infected calves do not develop normally.

The suspicion that a virus might be the cause of this disease was first voiced by Nagel,² based on his failure to demonstrate bacteria in pneumonic lungs of "scours" calves. His attempts to demonstrate a virus, however, were inconclusive. Only 1 of the 4 calves inoculated with a Seitz filtrate of infected lungs developed evidence of disease, necropsy revealing an intercurrent infection. Similar inconclusive results were reported by Lamont, who was able to produce a disease in calves by simultaneous inoculation with a Berkefeld filtrate of infected lungs plus a hemophilus-like organism previously isolated from the lungs of a diseased calf. He, however, was unable to transfer this dual infection to a second calf.

In 1940 Horsfall and Hahn³ showed that it is often possible to demonstrate a latent infection in apparently normal mouse lungs by serial intranasal inoculations at seven to nine day intervals into normal mice. After the second or third serial passage of the inapparent infection the latent virus acquires a sufficient pathogenicity to produce typical pneumonia. Adopting a similar technique, Baker inoculated groups of virus-free young mice intranasally with 0.05 cc. of a 24 per cent suspension of

pulmonary tissue from "scours" calves. The initial group of mice did not show demonstrable signs or symptoms of disease. By the third serial passage from their apparently normal lungs, however, definite pulmonary lesions were produced, increasing to a lethal pneumonia by the eighth passage. Filtration experiments showed that the infectious agent in the mouse lungs readily passes through a Berkefeld N filter and is therefore presumably a virus.

Intranasal inoculation of calves with suspensions of these infected mouse lungs produced fever (105.8 F) and diarrhea after an incubation period of about three days, followed two days later with signs and symptoms of pneumonia. The diarrheal symptoms ceased about three days later, at which time the temperature fell to normal. Examination of various organs of the infected calves showed that the virus is present only in the lungs and intestine during the first day after onset of the fever. By the third or fourth day the virus is present also in the serum, liver, spleen, kidneys and mesenteric lymph nodes. During convalescence the virus may persist in the pulmonary tissues long after cessation of diarrheal symptoms. Mouse inoculation tests showed that the serum of normal calves will not neutralize this virus. The virus, however, is neutralized by the serum of calves recovered from the experimental mouse virus infection or convalescent from the natural "scours" disease.

A widespread epidemic of a similar disease characterized by diarrhea, nausea and vomiting occurred among the population of Philadelphia in 1943. Reimann and his associates⁴ of Jefferson Medical College made bacteriologic examinations of the stools and pharyngeal secretions of numerous patients. They found no bacteria that would account for the epidemic. About 100 young white mice were inoculated orally, intranasally or rectally with the supernatant fluid from centrifuged human diarrheal stools or with Berkefeld N filtrates from such stools. Pharyngeal washings from the same patients were also inoculated intranasally into mice. A few of the mice became sick and died, showing pneumonitis. Suspensions of the lungs and spleen from such mice were reinoculated by various routes into 100 fresh mice, with negative results. Intranasal inoculations of stool filtrates into 8 calves aged 4 weeks were also negative.

On account of these failures Reimann and his associates resorted to experimentation on student volunteers. Broth garglings and suspensions of diarrheal stools were passed through a Mandel filter. The resulting filtrates were nebulized and passed into a large box into which the volunteer's head was placed for five minutes. Twenty-one students inhaled nebulized stool filtrates. Eleven of them developed typical diarrheal symptoms after an incubation period of less than four

1. Baker, J. A.: *J. Exper. Med.* 78:435, 1943.
2. Nagel, H. C.: *Berl. tierärzt. Wchnschr.* 1947, p. 363.
3. Horsfall, I. L., Jr., and Hahn, R. G.: *J. Exper. Med.* 71:191, 1940.

4. Reimann, H. A.; Price, A. H., and Hodges, J. H.: *Proc. Soc. Exper. Biol. & Med.* 55:213, 1944; 59:8 (May) 1945.

days. In 3 cases the diarrhea was accompanied by a mild nasopharyngitis. Thirty-two students inhaled nebulized filtered garglings. Of these, 17 developed diarrhea without nasopharyngitis. Symptoms did not develop in 6 students who inhaled nebulized patient's serum. In all, 53 per cent of the volunteers who inhaled infectious mists developed typical virus diarrhea, as compared with only 9 per cent of the non-volunteers, who acquired the disease during the same period of time from environmental exposure. Another group of 15 students swallowed 3 cc. of filtered garglings in double gelatin capsules. Five swallowed stool filtrates and 4 patients' serums similarly encapsulated. No symptoms developed from such oral administration.

Considering the circumstances under which the tests were made, the results suggest that the causative agent of the Philadelphia epidemic was an air borne filtrable virus, which entered through the respiratory tract. This "virus dysentery" is presumably similar to air borne "scours" of calves. Detailed studies of the new enterotropic virus are now in progress.

INULIN

Inulin, a vegetable starch consisting of polymerized fructose molecules, has appeared in various roles in human biology. The American Indians used roots and tubers containing inulin as a foodstuff; after the discovery of America these were for some time competitors of the potato in Europe. With the final displacement of the Jerusalem artichoke by the potato in agriculture the interest in vegetables containing inulin vanished for many years. Toward the end of the last century they were recommended as substitutes for ordinary starch and sugar in the dietary control of diabetes mellitus. However, when it was shown that the human body does not possess any efficient mechanism for metabolism of this type of starch, the medicinal interest in inulin waned. It reappeared in 1935 on the discovery that inulin parenterally introduced is excreted exclusively through the glomeruli.¹ Inulin clearance tests have been used since then in clinical and experimental work to ascertain the function of glomerular filtration of normal and diseased kidneys and to study the action of numerous endogenous and exogenous agents, particularly those with diuretic effects, on the renal function.

Barnett² found that infants 4 to 9 days old have a glomerular filtration rate of inulin from 20 to 40 per cent of that of the adult and attributed this low renal function of the newborn to incomplete development of the glomeruli. The inulin clearance is reduced

on a functional renal basis during the antepartum period of women with preeclampsia and hypertension,³ and on an anatomic basis in persons with chronic nephritis.⁴ The colorimetric methods for the quantitative determination of inulin in the blood and urine are now sufficiently simple, reliable and accurate, requiring in part not more than 0.2 cc. of blood for the single test, to make inulin clearance tests practicable in the average hospital laboratory.⁵

The preparation of a chemically pure solution of inulin, free from pyrogen, levulose and the water insoluble type of inulin, is at present the main difficulty in the way of the practical clinical use of this important renal function test. The intravenous injection of impure solutions of inulin may give rise to severe untoward reactions. Inulin solutions properly prepared are apparently harmless even when given in large amounts in single or repeated doses over prolonged periods.⁶ Experiments by Hueper⁶ have thrown an interesting light on the development of colloidoclastic phenomena in the blood following the intravenous injection of solutions of colloidal substances. It was found that, in contrast to the reactions following the introduction of solutions of several macromolecular carbohydrates with molecular weight above 30,000, no such reactions occurred on the injection of solutions of inulin, which possesses a molecular weight of 3,000 to 5,000 and which, as stated, is readily filtered through the glomeruli, while the larger molecular carbohydrates are at least in part retained by the glomerular filter.

Current Comment

ARMY MEDICAL OFFICERS IN THE VETERANS ADMINISTRATION

Apparently President Franklin Delano Roosevelt, toward the end of 1944, sent a directive to the Army and Navy medical departments which compelled them to assign a certain number of their officers to the Veterans Administration for use in veterans' hospitals. The number of physicians now so employed approximates 1,700 medical officers out of a total of 2,300 physicians in the Veterans Administration. Day after day letters are being received from these men complaining bitterly of their inability to obtain their release from this service either on the basis of a point system or by any other technic. Apparently the Veterans Admin-

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1. Richards, A. N.; Westfall, B. R., and Bott, P. A.: *Renal Excretion of Inulin, Creatinine and Xylose in Normal Dogs*, Proc. Soc. Exper. Biol. & Med. 32: 73, 1934. Shannon, J. A., and Smith, H. W.: *The Excretion of Inulin, Xylose and Urea by Normal and Phlorizinized Man*, J. Clin. Investigation 14: 393, 1935.

2. Barnett, H. L.: *Renal Physiology in Infants and Children: I. Method for Estimation of Glomerular Filtration Rate*, Proc. Soc. Exper. Biol. & Med. 44: 654, 1940.

istration requires at least 3,600 physicians to carry on its present activities, and it has only 2,300, of whom only 600 are men regularly in the Veterans service. Inquiries made directly of the Army and Navy medical departments do not indicate that the officers there on duty have any solution for the problem. They urge that release of the medical officers from the Veterans Administration would make it necessary to retain the wounded in army and navy hospitals instead of releasing them to the Veterans Administration and that it would then be necessary to retain in the armed forces many medical officers who under present circumstances can be released. The letters from the physicians who have been assigned to the Veterans Administration complain bitterly that they have not been assigned in most instances to care of the sick but that the majority of the work given them is the keeping of records, with routine examinations for the determination of the extent of disabilities. Retention in this type of medical service of physicians who volunteered their services to the nation in time of war, with the understanding that they would be actively engaged in military medical service, is contrary to common justice and apparently a violation of the mutual obligation that developed on enlistment of the officer in a branch of the military service. The resentment and bitterness felt by these men against their government and against the officers of the armed forces who assigned them to these positions would seem to be well warranted. There has been disregard of their rights. True, the Congress has not yet declared the emergency at an end and these officers are still bound by their oath on being commissioned in either the Army or Navy medical departments. Nevertheless they feel that they are being held through a subterfuge in a service for which they did not enlist and in which they could not now be retained except by a tacit disregard of their rights.

LORD DAWSON AND THE POSTMORTEM EXAMINATION

Lord Dawson, who was physician to the London Hospital and twice president of the British Medical Association, died in London on March 7. In his will he left specific directions relative to postmortem examination. Lord Dawson felt that a postmortem examination should be made on his own body unless conditions arising out of the war made this too difficult or unless the doctors who were in attendance on him in his last illness thought that any service to knowledge could not follow such an examination. Here are his own words:

I do this because I think the public do not sufficiently realise the importance of post-mortem examinations being made and the advantages to knowledge and therefore to future generations which will accrue. We do not hesitate to have operations performed on our bodies when we are alive and circumstances require it. Why then should we mind operations (which are done with the same care, the same gentleness, and, I may add, the same reverence) being done to our bodies when we are dead? Surely this is rightful service which the dead should give to the living. The benefit of such service to the living is very great.

The message should be an inspiration to every physician and particularly to interns and residents in our great hospitals on whom falls, in most instances, the responsibility for securing consent to postmortem examinations on patients who die in the hospital.

THE INTERVIEW WITH NARCOSYNTHESIS

Hart and his associates¹ disagree with Grinker and Spiegel in differentiating the narcotic effects of barbituric acid derivatives as distinct from hypnosis. They feel that interview with the use of hypnotic drugs is largely another hypnotic therapy. In fact, barbiturates facilitate hypnosis for many subjects. These authors prefer intravenous sodium amytal to pentothal because with the former the milder levels of diminished awareness may be prolonged. There is also no difficulty with "hangover" effects from sodium amytal if sufficient caffeine with sodium benzoate is used at the end of the treatment. They have also observed that one may suggest a selective recall of actions and discussions under amytal narcosis, as with hypnosis, more readily than with pentothal narcosis, largely because the lighter levels of narcosis are better controlled. In the interview with sodium amytal 1 Gm. of sodium amytal is dissolved in 30 or 40 cc. of distilled water and is placed in a large syringe with a small gage intravenous needle. Caffeine with sodium benzoate $7\frac{1}{2}$ grains (0.5 Gm.) should always be at hand in a hypodermic syringe in case of untoward reactions or too deep a narcosis. The caffeine is injected subcutaneously at the completion of the interview in order to assure one against prolonged deep narcosis and to facilitate the return of awareness. The sodium amytal should be administered very slowly, 1 grain (0.06 Gm.) or less per minute. The interview consists in strong and repeated suggestions, reconstructing a combat situation. In the treatment of more than 500 cases they had only 1 instance of respiratory arrest, and that took place after 4 grains (0.26 Gm.) of sodium amytal. However, the administration of 15 grains (1 Gm.) of caffeine intravenously was followed by a prompt return of respiration. The interview with amytal was found to be effective as therapy for combat cases of recent origin, for recovery of forgotten or painful battle experiences and for the reliving of emotionally traumatic situations. Battle dreams, sleeplessness, irritability, associability and negativistic reactions subside promptly after an effective treatment. More lasting effects can be established by interpretation of this material during the next two or three days after the treatment. With the aid of this only two or three treatments were as a rule necessary. The sodium amytal interviews were found particularly valuable where faking or conscious distortions were suspected. This therapy was also useful in the treatment of conversion symptoms, particularly in demonstrating functional limps and backaches. Skill in the employment of amytal, the authors assert, is not difficult to acquire. The interview with hypnotic drugs is another valuable and rapid technic for diagnosis and treatment in psychiatric states.

1. Hart, W. L.; Ebaugh, F. G., and Morgan, D. W.: The Amytal Interview, *Am. J. M. Sc.* 210: 125 (July) 1945.

MEDICINE AND THE WAR

MEDICAL PROBLEMS OF THE VETERANS ADMINISTRATION

MAJOR GENERAL PAUL R. HAWLEY

In undertaking the reorganization of the Medical Service of the Veterans Administration, the Acting Surgeon General is anxious to have the approval and support of the medical profession; only in this way can the program succeed.

While, so far as the patient is concerned, medical care is one complete function, it must be divided administratively into his hospitalization and his outpatient treatment. In the majority of cases, perhaps, complete medical care is furnished by outpatient treatment; but there are many other cases in which outpatient treatment is either preliminary to hospitalization or supplements the care given in hospitals.

It is impossible to undertake the medical care of the veteran with a permanent, full time, paid corps of medical persons. That was tried when the proportion of doctors among the population was higher than it is now and perhaps higher than it will be for the next ten or fifteen years. It failed for several reasons: first, because it was impossible to get the proper caliber of medical personnel for the compensation given them; second, because hospitals were built in inaccessible places, where their staffs lost touch with the advance in medicine, no provision having been made for graduate training and for keeping these physicians in touch with medicine and surgery; third, because no inducement was given to physicians who entered the service to improve themselves of their own volition.

There are but few physicians in the Veterans Administration who have been certified by a specialty board. Occasionally, however, one is encountered; and since he has accomplished this distinction without the encouragement of his service, he is to be admired.

General Bradley has elevated the status of the Medical Service to that of a major service, responsible directly to the Administrator of Veterans' Affairs. He is fully alive to the great medical problems confronting his administration and will support every effort to improve his medical service, including encouragement of professional study.

The requirement at the present time is for about 3,600 physicians. There are in the administration 2,300, of whom 1,700 are on loan from the Army and the Navy. If the entire load of only our hospitals and of physical examinations is to be carried by full time physicians, 1,500 more are needed. The large majority of those lent by the Army and the Navy are unhappy and dissatisfied, for very evident reasons. Obviously, therefore, the situation is critical. It is impossible to weather this storm with the means at our disposal at the moment.

In asking the assistance of the civilian profession, the present administration wants to do everything it can to make the service that they will give worth while to them individually and to the profession as a whole. The pay offered the physician probably will not be as much as his service would command outside. However, a study is being made of the scale of salaries and fees, with the idea of revising them upward so that they will more nearly approach what the services are worth. If it is objectionable to the civilian profession to become an employee of the hospital, then we must have two accounts—one for the hospital and one for the physician.

Most of the leaders in the profession are interested in teaching, but the facilities for graduate training of physicians do not seem to be adequate in certain places in the country; so the administration would like to have close liaison with teaching institutions.

Over and above the financial return and the opportunities for teaching, there is little to offer the well qualified physician whom it is hoped to interest. Consequently the administration no doubt will have to appeal to the unselfishness of the profession,

realizing that it will contribute more than it receives and asking it to charge the deficit to a fine public service rendered in the care of the veteran.

In the outpatient care—and by that term is meant any care or treatment given to the veteran who is not actually admitted to a hospital—it is hoped to get something started very rapidly.

Care must be used in appointing as consultants only those physicians who are highly regarded by the rest of the profession so that these appointments will be a mark of quality. We want no one to be ashamed to say that he has been appointed a consultant by the Veterans Administration. It is proposed to extend this principle to the small communities where physicians must be designated to take the outpatient service. It is a matter of law that the veteran go to a veterans' physician, but there is nothing in the law to say that all qualified physicians in a community cannot be designated to take care of veterans.

The idea should be conveyed even to the smallest component society of the American Medical Association that here is a public duty which should be considered seriously, and that the local society must bear this in mind in its recommendations.

In regard to clinics for neuropsychiatric patients: There are not enough psychiatrists, especially in the smaller communities, to establish mental hygiene clinics. Contact has been made with the American Psychiatric Society to try to offer some facilities for a program for the training of doctors in this specialty. In the smaller community the administration may have to depend, not on fully qualified psychiatrists, but on family physicians who are given an opportunity to take short courses in psychiatry.

The paper work, that is, the filling out of forms connected with the care of the veteran, seems to frighten the physician. Perhaps a committee could simplify these procedures so as to make it less burdensome for the man who undertakes the work.

Another great obstacle is the policy, fostered and encouraged by several groups interested in the veteran, that the most essential thing in the care of the veteran is to keep him close to home. When one speaks of moving a veteran away from his home to give him better care, one encounters strenuous objection. This would make specialized care of the veteran impossible because there are not enough specialists in many areas to give the kind of care which the veterans should have. Perhaps the best person to reeducate the family on this is the family physician. He can do much to persuade the family to consent to moving the veteran for better specialized care.

General Bradley asked Congress to postpone action on the bill to create a permanent medical corps for the Veterans Administration until he could study it, and the draft has been completely rewritten. At first I was opposed to any permanent corps, but I have had to compromise my own thought in the matter. The Veterans Administration has thousands of beds in inaccessible places which it will have to use, and it will no doubt have to have a permanent corps to staff these hospitals. It is hoped that such mistakes in locations will not be repeated. Then there is a certain kind of administrative work on rating boards for which it is almost impossible to procure part time service. Full time people for this work probably will be necessary, but the corps will not be anywhere near large enough to carry the entire veterans' load, and no attempt will be made to build up a large permanent organization.

The general provisions of this bill have been limited to medical people, including only one small corps of allied professional people, such as the Public Health Service has. Pathologists, chemists and research workers may be required in addition to physicians, dentists, nurses, physical therapists, occupational therapists and a small group of pharmacists that have been included.

The promotion of people in the allied professions and the allocation of grades to them have been made comparable to the amount of training it takes to qualify them for their profession. The scale of pay and retirement privileges are the same as for the Army, the Navy and the Public Health Service. One additional feature has been added: When an officer has been certified by one of the specialty boards and has been rated as a specialist by the Surgeon General, his pay shall be increased 25 per cent over that to which his grade and length of service would entitle him. This is to encourage professional advancement.

One great trouble with the Veterans Administration has been its centralization. The administrator is now decentralizing the

administration to thirteen districts. There must be a medical staff in each district. There the requirement is for full time people. The principal duties of the medical staff of the districts is the supervision of the medical service, liaison with the civilian profession and appointment of proper consultants. This phase of the reorganization will probably take about two years. One district at a time will be established.

I should like to see veterans' hospitals built in such a way that, as their need for the care of veterans decreases, they can be fitted into the need of the people as a whole. In the years to come they could perhaps be turned over to communities. I am in favor of the care of the veteran in the existing civilian institutions to the greatest possible extent.

NAVY

NAVY REDUCES POINT SCORE FOR MEDICAL OFFICERS

Four thousand medical officers of the Naval Reserve will become eligible for separation to inactive duty by Jan. 1, 1946 under provisions of an ALNAV recently signed by the Secretary of the Navy. The new order, effective November 1, establishes a critical score of 53 points for male medical officers, a reduction of 7 points from the figure in effect since September 15.

Present strength of the Navy Medical Corps (Regulars and Reserves) is 13,700. This is exclusive of a relatively small number of active officers on the retired list, interns, women medical officers and male officers assigned to duty with the Veterans Administration. All but approximately 2,000 are in the Naval Reserve.

Under the 60 point score discharge system effective since September 15 it was estimated that 1,700 medical officers would have been eligible for discharge by January 1. Lowering of the score will increase this total by nearly 150 per cent.

HOLD MEETING AT NAVAL HOSPITAL

Rear Admiral W. J. C. Agnew (MC), U.S.N., assistant chief of the Bureau of Medicine and Surgery, who is making an inspection tour of West Coast activities, attended the recent autumn meeting of the Northern California Society of Neurology and Psychiatry at the United States Naval Hospital, San Leandro, Calif.

Capt. W. F. Kennedy (MC), U.S.N., medical officer in command of the hospital, opened the one day meeting and conducted a hospital inspection which featured a demonstration of rehabilitation methods, directed by Lieut. Comdr. F. J. Hamilton (MC), U.S.N.R.

Presided over by Capt. Lawrence R. Gowan (MC), U.S.N.R., chief of the Neuropsychiatry Department, the evening program was given over to preliminary reports on research studies in epilepsy by Lieut. Comdr. Knox H. Finley (MC), U.S.N.R., Lieut. Comdr. Thomas W. Richards, Hospital Corps, U.S.N.R., and Lieut. Charles M. Jessico (MC), U.S.N.R. Etiologic Factors in the Production of the Neuroses of War was discussed by Comdr. George H. Gerow (MC), U.S.N.R.

NAVY TO RELEASE NURSES

Under the Navy's point system, about 2,000 Naval Reserve nurses will be released by February 1946, according to Capt. Sue S. Dauser, U. S. N., superintendent of the Nurse Corps.

The V-J day strength of the Nurse Corps was 11,000. Already 800 nurses with the 35 points required to be eligible for discharge are beginning to move through the five personnel separation units for Waves and Navy nurses, situated at Washington, D. C., New York, Memphis, Tenn., Great Lakes, Ill., and San Francisco. By September 1946 it is estimated that about 7,000 will have been released under the point system.

Captain Dauser also announced that as soon as the patient loads diminish sufficiently the Navy will consider the release of all married nurses, regardless of the number of points. Approximately 700 nurses would be affected by this ruling.

NAVY AWARDS AND COMMENDATIONS

Lieutenant Commander Ernest A. Zinke Jr.

The Bronze Star was recently awarded to Lieut. Comdr. Ernest A. Zinke Jr., formerly of Holtville, Calif., "for outstanding work in the care of the injured when a heavy cruiser was attacked by enemy planes in the Southwest Pacific." Dr. Zinke graduated from the College of Medical Evangelists, Loma-Linda, Calif., in 1938 and entered the service May 15, 1941.

Lieutenant James W. Tedder

Lieut. James W. Tedder, formerly of New Orleans, was recently awarded the Bronze Star for heroic and meritorious service to survivors of a torpedoed, sunken ship in Lingayen Gulf during the invasion of Luzon in the Philippines last January. Dr. Tedder graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1932 and entered the service Jan. 2, 1943.

Lieutenant Commander Alvin L. Mathis

Lieut. Comdr. Alvin L. Mathis, formerly of Elmhurst, Ill., was recently awarded the Silver Star. He has served with the First Marine Division in the Pacific and was cited for intrepidity and initiative in administering to and evacuating wounded from beyond the front lines on Peleliu last September 17. Dr. Mathis graduated from the University of Illinois College of Medicine, Chicago, in 1930 and entered the service March 26, 1943.

PUBLIC HEALTH SERVICE.

RELEASE OF MEDICAL OFFICERS FROM THE PUBLIC HEALTH SERVICE

The Public Health Service has adopted a point system to determine the order of release of reserve medical officers who desire to return to civilian practice. Points will be calculated on the following basis:

Each year of age	½ point
Each month of service since June 30, 1939	½ point
Each month of service outside the continental United States	½ point
Dependents (regardless of number)	10 points

Physical disabilities, individual hardships and urgent need for an officer's services in a community, medical school, teaching hospital or health department will also receive consideration.

As the war activities of the Public Health Service have decreased, release of officers has been effected. Those with the greatest number of points have received and will continue to receive prior consideration. The rate of future releases will necessarily be gradual over the next few months because of the work of the service in connection with demobilization and of the necessity of maintaining activities which will be carried at a peacetime level. At the present time there are only 987 reserve medical officers on active duty, and it is anticipated that practically all who desire will be separated from the service not later than Sept. 1, 1946.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Oct. 8, 1945.

Praise for Monmouth County, N. J., Medical Plan

Major Gen. Paul R. Hawley, acting Surgeon General of the Veterans Administration, has expressed his gratification over the Monmouth County, N. J., plan of cooperation with the Veterans Administration to provide medical service for ex-GIs in doctor-nurse shortage areas. He urged other counties and communities to work out their own plans for cooperating with the agency to serve the returning veterans. The Monmouth plan was presented by Dr. W. G. Herrman, past president of the Medical Society of New Jersey, and Dr. Granville Jones, president of the Monmouth County Medical Society. According to the plan the Veterans Administration will agree to certify all county medical society members to treat veterans. The executive committee of the society will select three screening clinics, each made up of five specialists, and all county veterans desiring medical treatment will appear before one of the clinics. The kind of medical service required will be diagnosed and, except for unusual ailments, veterans will be allowed to choose their doctors. Most veterans, it is expected, can be treated as outpatients or at the home or in a county hospital, but some will require protracted hospitalization in veterans' hospitals. A special disciplinary board will pass on complaints by veterans, physicians or Veterans Administration representatives. These and other features of the plan will enable the veteran to be treated as a member of his community rather than as a segregated individual. He will receive medical and hospital care a reasonable distance from home, with medical fees and expenses paid by the administration. Under the present Veterans Administration setup the outpatient service hardly exists, and a veteran must remain in an administration facility to get treatment. For three months the screening committee, doctors and county hospitals will donate their services to the agency. The fixed fee schedule will be accepted by participating doctors until the experiment is accepted as an official activity of the Veterans Administration. The present fee is regarded as too low.

Revamped Hospital and Health Center Bill Prepared

A revised bill providing federal aid for hospital and health center construction is ready for approval by the Senate Education and Labor Committee. Originally introduced by Senator Hill (Dem.) of Alabama and Senator Burton (Rep.) of Ohio, it was rewritten by the committee to provide federal grants totaling \$75,000,000 a year for five years, and to appropriate \$5,000,000 for a survey of national hospital and health center needs. Funds would be distributed on a population and per capita wealth basis. Fifteen of the poorest states, mostly in the South, would get 47.8 per cent of the funds, sixteen middle bracket states 18 per cent and eighteen of the wealthiest states 31 per cent, with territories allotted 32 per cent. Originally it was planned to match funds for public and nonprofit hospitals on a 50-50 basis. The federal contribution as it is now planned would be 33 per cent for richest states and 75 per cent for the poorest.

Continued Discussion on Improvement of Artificial Limbs

Considerable discussion continues to be devoted in Congress to improvement of artificial limbs for servicemen. The Veterans Administration reveals that it is organizing a new section to study the problem of providing the best artificial limbs for war amputees, headed by Walter M. Bura of Miami, Fla., an amputee and at present civilian adviser to the Surgeon General. Meantime the agency, through Col. J. C. Harding, acting assistant to the Surgeon General, has answered criticism that the agency was paying \$125 for artificial limbs which it costs \$35 to make. On top of all this members of the House Subcommittee to Investigate and Aid the Physically Handicapped have

agreed informally to recommend to Congress that research on artificial limbs be undertaken by a single federal agency. It is expected to recommend in the next fortnight an appropriation of around \$500,000 annually for federal research on artificial limbs and creation by the artificial limb industry of a fair trade code enforceable by the Federal Trade Commission. Also expected is a recommendation from the committee that all skilled artificial limb craftsmen be released from the armed forces.

Army Ponders Fate of 7,959 Medical Students

The Navy has demobilized its medical students, ending its medical training program with the war, although students were notified they would be commissioned and placed on reserve status if they wished to continue studies and graduate at their own expense. However, the House Military Affairs Committee is now concerned over some 7,959 medical students whose studies are being continued at Army expense. The committee is faced with these alternatives: Should Congress require them to stay in the Army long enough to complete their free education or long enough to pay for it or should the students be demobilized to a pay as you go status? The Army has ordered that the War Department carry on the training program, in which 300 new students were enrolled this month. About 10,000 have graduated since the program started. All enlisted as privates, and school fees and expenses were paid. They get subsistence pay of \$90 a month, which adds up to around \$9,000,000 a year for 7,959 students. With summer vacations and holidays omitted, they finish a four year medical course in thirty-six months.

Veterans Administration Seeks Aid on Claims

Now under negotiation is a plan whereby the medical profession would assist the Veterans Administration in medical work involved in clearing up a heavy backlog of veteran claims. As the full force of war casualties is now hitting the agency, more than a million pension claims have already been filed. On September 20, 73,453 veterans were under hospital treatment and 9,610 were receiving domiciliary care. The hospital figures had been climbing slowly since Jan. 31, 1942, when 58,576 patients were listed.

Medical Legislation

Health Programs for Government Employees

The House has passed H. R. 2716 to provide for health programs for government employees. During the discussion of this bill on the floor of the House, numerous questions were raised concerning the relationship of this bill to proposals to socialize the practice of medicine. After the assurance had been given that the bill had no relation whatever to such proposals, it was passed.

Miscellaneous

Another bill to provide for the general welfare by enabling the several states to make more adequate provision for the health and welfare of mothers and children and for services to crippled children has been introduced by Representative Patterson, California, H. R. 4059. It is identical with the Pepper bill, S. 1318.

Representative Priest, Tennessee, has introduced H. R. 4110, proposing that no new graduate or student nurse shall be admitted for training or courses under the act providing for the training of nurses after October 15, 1945, and that not more than 30,000 student nurses shall be admitted for training after June 30, 1945 and prior to Oct. 16, 1945.

H. R. 4070, introduced by Representative Spence, Kentucky, will provide for water pollution control activities in the United States Public Health Service. It is pending in the House Committee on Rivers and Harbors.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Dr. Graves Honored.—On September 14 the faculty of the Medical College of Alabama, Birmingham, gave a farewell dinner in honor of Dr. Stuart Graves, who is now dean emeritus and professor of pathology emeritus, and Mrs. Graves. Dr. Ralph McBurney, professor of bacteriology, and oldest full time professor on the Tuscaloosa school faculty in point of service, was toastmaster. Dr. Graves, who was presented with a gold mounted fountain pen and pencil set, will not end his work in medical education with the transfer of the faculty of students of the School of Basic Medical Sciences to the Birmingham school. Although approaching the age of retirement he will continue to occupy an office on the ground floor of Nott Hall, which is being remodeled and renovated for the department of biology. He will act as director of admissions for the Medical College of Alabama and as adviser to premedical students on the university campus. At the request of Dr. Roy R. Kracke, dean of the new four year Medical College of Alabama (*THE JOURNAL*, Aug. 11, p. 1116), Dr. Graves will also be editor of the *Medical Bulletin* and act as chairman of the committee on student welfare in the Medical College of Alabama, commuting at times to Birmingham. He has also been made a member of the university committee on premedical studies and the university committee on student health.

FLORIDA

Dr. Griffiths Goes to Haiti.—Dr. Thomas H. D. Griffiths, former Dade County health commissioner, has been appointed director of health for the republic of Haiti, according to the *Miami Herald*. He was scheduled to leave September 22 by plane for his new post. Before coming to Dade County in November 1942 Dr. Griffiths had retired from the U. S. Public Health Service after thirty years of service. He has been living at Fort Lauderdale for the past year.

Henry Hanson Honored.—More than 200 employees of the state board of health gathered September 15 to present to Dr. Henry Hanson a finger ring containing three diamonds. Presentation was made by Dr. George A. Dame, Jacksonville, director of the state bureau of local health service. The gift was made possible by members and employees of the state board of health and marks the retirement of Dr. Hanson as state health officer (*THE JOURNAL*, September 22, p. 291).

District Medical Meetings.—The Florida Medical Association announces the meeting schedule of the following district societies: Northwest Medical, Tallahassee, October 15, *Floridan Hotel*; the Northeast Medical, Ocala, October 16, *Highlands Hotel*; Southwest Medical, Tampa, October 17, *Hillsboro Hotel*; Southeast Medical, Miami, October 18, *Coral Gables Country Club*. Activities of current interest of the profession will be discussed by the various officers of the state medical association.

MINNESOTA

Supreme Court Voids Medical Board.—The Minnesota Supreme Court recently declared unconstitutional a provision of the workmen's compensation law, passed by the 1943 legislature, which provided for creation of a medical board to determine controverted or disputed medical issues in occupational disease cases. The section voided by this action of the Supreme Court provided for a medical board of three doctors of medicine selected from a panel of fifteen nominees chosen by the dean of the University of Minnesota Medical School, Minneapolis, the council of the Minnesota State Medical Association and the governor of Minnesota. The medical board was authorized to examine the employee and file its "findings and conclusions" with the industrial commission, signed by all the members of the board participating. The "findings" were to state, among other things, whether the employee had been afflicted with an occupational disease within the provisions and definitions of the occupational disease law. Based on the premise that there were no provisions under the law that a transcript of the evidence on which the board's findings were based be filed with its report, the Supreme Court ruled the medical board as set up to be unconstitutional for the reason

that it denied a claimant for compensation the right of full review guaranteed him by the workmen's compensation law under the "due process" clause in the statute. According to *Minnesota Medicine*, with the elimination of the medical board the statute, as it now stands, will permit the industrial commission or a referee within the commission, according to established practice, to take testimony of one physician for each party on the question of occupational disease. If the commission or the referee hearing such evidence is unable to determine whether a claimant suffers from an occupational disease within the provisions of the statute, then the commission or the referee conducting the hearing may, on his own motion, designate a neutral physician in good standing to examine the injured person and report his findings, which, in addition to other evidence, will be weighed by the commission or referee as competent evidence in determining this issue.

OHIO

James Doull to Direct International Health Relations.—Dr. James A. Doull has resigned as Elisabeth Severance Prentiss professor of public health at Western Reserve University School of Medicine, Cleveland, effective March 31, 1946, to join the regular corps of the U. S. Public Health Service and be in charge of international health relations in the Office of the Surgeon General. The appointment is said to be in anticipation of the establishment of a new national health organization in the near future to take over and extend the functions of the health sections of the league of nations. The resignation vacates the chair in public health established recently in the school of medicine by the university with the support of a bequest by the late Mrs. Elisabeth Severance Prentiss. Dr. Doull had previously been head of the department of hygiene and bacteriology, now divided into the department of public health and the department of microbiology (*THE JOURNAL*, July 28, p. 963). Dr. Doull has been at Western Reserve University since 1930.

UTAH

State Medical Election.—New officers of the Utah State Medical Association include Drs. Ray T. Woolsey, Salt Lake City, president; Lester A. Stevenson, Salt Lake City, president-elect, and David G. Edmunds, Salt Lake City, secretary.

WASHINGTON

Edward Turner Named Dean of New Medical School.—On September 29 Dr. Edward L. Turner, Bradford, Pa., was appointed dean of the new Medical School of the University of Washington (*THE JOURNAL*, February 3 p. 288; April 21, p. 1067). He is expected to start his work of organizing the medical school about December 1; he will also make plans for the proposed school of dentistry. Dr. Turner graduated at the University of Pennsylvania School of Medicine, Philadelphia, in 1928. He was associated with the American University of Beirut, Syria, for about ten years as head of the department of physiology, head of the department of medicine and later as acting dean of the medical school. From 1938 to 1944 Dr. Turner was president of the Meharry Medical College, Nashville, having served earlier as professor and head of the department of medicine.

GENERAL

George Dunham Resigns.—Dr. George C. Dunham has resigned as president of the Institute of Inter-American Affairs because of ill health. He will continue his service with the institute as chairman of the board of directors. Col. Harold E. Gotaas, S. C., A. U. S., formerly executive vice president of the Institute of Inter-American Affairs and director of the Division of Health and Sanitation, will succeed Dr. Dunham. Col. John D. Yeagley, M. C., A. U. S., associate director of the Division of Health and Sanitation of the institute, has been appointed director to succeed Colonel Gotaas.

Medical Illustrators Meeting.—Officers of the Association of Medical Illustrators met in New York recently to discuss certain proposed activities and the final draft of the new constitution and by-laws. The meeting was held in conjunction with the session of the Biological Photographic Association. Elon Clark of Duke University School of Medicine, Durham, N. C., is the chairman of the fifteen member board of governors set up by the Association of Medical Illustrators. Mr. Tom Jones, University of Illinois College of Medicine, Chicago, is president and Mr. Willard C. Shepard, Philadelphia, vice president; Muriel McLatchie, Boston, secretary and Elizabeth Brodel, New York, treasurer (*THE JOURNAL*, August 4, p. 1040).

Reduced Fares to Ophthalmology Congress.—The Pan American Airways System is offering a 15 per cent reduction on fares to delegates attending the Pan American Congress of Ophthalmology meeting at Montevideo, Uruguay, November 26-December 1 (*THE JOURNAL*, September 15, p. 224). The fare from Miami to Montevideo via the East Coast is \$486 one way, \$874.80 round trip, and via the West Coast \$504 one way, \$907.20 round trip. For any delegates who may be interested in making a circle trip around South America the fare will be \$891. All these fares are subject to the 15 per cent United States transportation tax. However, as already mentioned, these fares are also subject to 15 per cent discount.

Hospital Review to Substitute for National Meeting.—A series of publications containing data of both contemporary importance and lasting interest to hospital administrators and the hospital minded will take the place of the 1945 convention of the American Hospital Association. Entitled in its entirety as "The 1945 Hospital Review," the series will deal with current developments in problems of hospitals and outlooks for the future. To be distributed in October, the first work of the series, "The Individual Hospital" will be composed of three book sections and a preface. The book sections include "Measuring the Community for a Hospital," "Organization of Governing Board and Medical Staff" and "Administrative Aspects of Hospital Construction," all prepared by Dr. Warren P. Morrill, Chicago, research director of the association. The preface to these sections will contain contemporary definitions of the hospital in relation to the physician, the trustee and the administrator. The definitions are being contributed by recognized spokesmen in these fields. "Economic Issues Facing Hospitals," treated in six book sections, will comprise the second in the series. Public leaders and officers and headquarters personnel of the association will prepare material on economic issues facing hospitals, U. S. Senate bill 191, government payment for hospital care of indigents, care of the veteran in community hospitals, the Blue Cross prepayment plans and the Commission on Hospital Care. The third publication, "Activities and Business of the American Hospital Association," will include addresses by the outgoing and incoming presidents, Drs. Donald C. Smeizer, Philadelphia, and Peter D. Ward, St. Paul, respectively, in addition to reports of the association's bodies and a summary of its activities during the year. Transactions of the house of delegates meeting in Chicago, November 5-7, will also be published in the third book.

Tenth National Assembly of College of Surgeons.—The tenth (Victory) National Assembly of the United States chapter of the International College of Surgeons will be held December 6-8 at the Mayflower Hotel, Washington, D. C., under the general chairmanship of Dr. Custis Lee Hall, Washington. The speakers will include:

- Dr. Garnet W. Ault, Washington, D. C., Ulcerative Colitis.
- Lieut. Col. Wilbert H. McGaw, M. C., Pneumographic Differential Diagnosis in Internal Derangement of the Knee Joint.
- Capt. Winchell M. Craig (MC) and Capt. Joseph S. Barr (MC), Recounting of Spinal Cord Injuries.
- Dr. Edgar Davis, Washington, D. C., Tumors of the Lung.
- Dr. Charles Stanley White, Washington, D. C., Amino Acids in Surgery.
- Dr. J. Ross Veal, Washington, D. C., Circulatory Disturbances of the Lower Extremity.
- Dr. Elmer Hess, Erie, Pa., Conservative Renal Surgery.
- Dr. Albert A. Berg, New York, Terminal Ileitis.
- Lieut. Col. Benvenuto R. Dino y Regidar, M. C., Philippine Army, Salvaging Medical Education in the Philippines.
- Dr. Emil J. C. Hildenbrand, Washington, D. C., Refrigeration Anesthesia.
- Dr. Roland M. Klemme, St. Louis, Major Neuralgias.
- Dr. Moses Behrend, Philadelphia, Phlebitis, Embolism and Thrombosis.
- Drs. James W. Watts and Walter Freeman, Washington, D. C., "Psycho-surgery" for the Relief of Unbearable Pain.
- Dr. Clark D. Brooks, Detroit, Problems in Gallbladder Surgery.
- Major General Paul R. Hawley, M. C., Washington, D. C., Surgery in the European Theater of Operations.
- Lieut. Col. Brian B. Blades, M. C., Washington, D. C., Recent Advance in the Treatment of Chronic Empyema.
- Dr. Eduardo Cáceres, Lima, Peru, Cancer of the Larynx.
- U. S. Senator Allen W. Bartley, Washington, D. C., The World Today.
- Dr. James C. Masson, Rochester, Minn., Cancer of the Uterus: When Surgery, When X-Ray?
- Dr. Edward V. M. Martin, St. Louis, Surgery of the Thyroid Gland.
- Dr. Frank E. Adair, New York, Carcinoma of the Breast.

Other speakers on the program will include Col. Alfred R. Shands, M. C., and Col. Leonard T. Peterson, M. C. Dr. Herbert Acuff, Knoxville, Tenn., is president and Dr. Louis J. Gariopy, Detroit, secretary of the United States chapter of the college.

Certification in Allergy.—The American Board of Pediatrics at its meeting in New York in April took final action establishing certification in allergy as a subspecialty of pediatrics. Certification in pediatrics by the American Board of Pediatrics is a prerequisite for such certification in allergy. Those who are already specialists certified by the pediatric board and who wish to be certified in allergy must make formal application to the secretary of the American Board of Pediatrics, Dr. C. Anderson Aldrich, 115½ First Avenue S.W., Rochester, Minn. Those who are not yet certified in pediatrics who desire certification in allergy as well should indicate this in their application to the board of pediatrics as examination in the two subjects may be held at the same time. The application fee for certification in allergy will be \$25 in addition to the application fee for certification in pediatrics. An Advisory Committee on Allergy has been appointed to act with the board of pediatrics in all matters pertaining to the selection and examination of applicants for subspecialty certification. This committee is identical with the Advisory Committee on Allergy of the American Board of Internal Medicine. The present members of this committee are Drs. Harry L. Alexander, St. Louis; Robert A. Cooke, New York; Leslie N. Gay, Baltimore; Harry L. Huber, Chicago; George Piness, Los Angeles, and Francis M. Rackemann, Boston. In December of this year Dr. Oscar M. Schloss, New York, will be appointed as a pediatric member of this advisory committee to take the place of the retiring member. The Advisory Committee on Allergy has already outlined the requirements for applicants who desire examination in the subspecialty of allergy as follows:

Two years, full time, in a satisfactory allergy clinic and its hospital (including training both in allergy and in pediatrics) or

One year, full time, in the allergy clinic and its hospital and two additional years of full attendance on such an allergy clinic and its activities or

Five years, full attendance, on such an allergy clinic and its activities or

Special training under qualified preceptors, solely or in combination with aforementioned types of training, and such other training as might be felt adequate to prepare an individual for the practice of allergy.

It was further the opinion of this committee that clinics for such training should fulfil the following qualifications:

They should be in hospitals that have been accepted by the Council on Medical Education and Hospitals of the American Medical Association and by the American Board of Pediatrics for training and certification in pediatrics and for residencies in pediatrics or medicine.

The director of the allergy clinic should be a specialist certified in allergy by the American Board of Internal Medicine or the American Board of Pediatrics.

When accepted, the certified specialist will receive from the American Board of Pediatrics a certificate in allergy and will be listed as a specialist in allergy in the official directory of the Advisory Board for Medical Specialties.

LATIN AMERICA

Health Activities in Latin America.—*School of Hygiene Dedicated.*—Dr. Marcos Charnes writes that the School of Hygiene of Chile was organized in 1944 through the cooperative efforts of the University of Chile, the Public Health Service of Chile, the Bacteriologic Institute of Chile and the Rockefeller Institute. A news item in *THE JOURNAL*, July 28, page 965, stated that the U. S. Public Health Service participated in the organization.

Health Center.—A health center was opened in Lima as an experimental center for small units to be constructed throughout the country. The center is located in the Rimac district of Lima, one of the poorer districts of the city, and was erected by the Inter-American Public Health Service in cooperation with the Peruvian Ministry of Public Health.

Physicians Threaten to Suspend Research.—According to the *Chicago Tribune* the military government of Argentina encountered new troubles in September, when a group of physicians threatened to suspend their scientific activities and a local union took sides with striking transport company employees the government had ordered back to work. The *Union Obrera* local threatened a sympathy strike to support the transport workers "when circumstances demand." The Argentina Medical Association resolved in a meeting to ask its board of directors to "suspend the association's scientific activities until constitutional normalcy is restored." The physicians' resolution said an "atmosphere of liberty, confidence, security, and tranquillity are absolutely indispensable" to investigation for scientific progress and declared "it is notorious that such conditions do not exist presently in Argentina." The action followed a similar protest by the nation's lawyers, who halted their activities and caused a virtual standstill in Argentina's courts.

Deaths

Walter Bradford Cannon * Boston, renowned physiologist, died October 1 at his summer home in Franklin, N. H., of bronchial pneumonia and leukemia.

Dr. Cannon was born in Prairie du Chien, Wis., Oct. 19, 1871. He graduated at Harvard in 1900, having been a member of the faculty in 1899 and serving successively as instructor in zoology, instructor in physiology and assistant professor. He had been George Higginson professor and head of the department of physiology since 1906, retiring in 1940 with the title emeritus.

In his book on "The Wisdom of the Body," Dr. Cannon said that his first research when a student of medicine was a study of the phenomenon of swallowing. Thus began a long career of physiologic investigation. For his distinguished achievements he was awarded the Baly Medal of the Royal College of Physicians in 1931 and the gold medal of the National Institute of Social Sciences in 1934. In 1941 he was the first recipient of the Friedenwald Medal of the American Gastro-Enterological Association in "recognition of his pioneer utilization of the x-rays in gastroenterology, and his important contributions to the mechanics of digestion, to the elucidation of the sensations of hunger and thirst, and to the development of the science and practice of gastroenterology." He had been awarded many honorary degrees and held membership and fellowship in numerous scientific groups in this country and abroad. He had delivered such prominent lectures as the Lineacre at Cambridge University, Herter, Beaumont, Caldwell, Kober, Newbold, George Brown, Welch and Jones, serving at one time as Croonian lecturer of the Royal Society and Hugglings Jackson lecturer at McGill University. From 1929 to 1930 he had been Harvard exchange professor to France and for a time in 1935 visiting professor to Peiping Union Medical School. From 1906 to 1908 he was secretary of the Section on Pathology and Physiology of the American Medical Association. In 1925, when the Association created a Council on Physical Therapy, Dr. Cannon was named one of its members. Serving as president of the Medical Research Society of the American Red Cross, France, 1917-1918, and as a lieutenant colonel in the medical corps of the U. S. Army during World War I, the medical corps of the U. S. Army during World War I, Dr. Cannon subsequently received the Decorations of the Companion of the Bath (British) and the Distinguished Service Medal for his services as director of physiologic research for the American Expeditionary Forces in France. In later years he was president of the American Association for the Advancement of Science, a member of the board of scientific directors of the Rockefeller Institute for Medical Research, vice president for America of the International League Against Epilepsy, member of an advisory committee to a council created in 1936 to administer the program of research in child neurology for the Friedsam Foundation, member of the Medical Fellowship Board of the National Research Council and, in 1943, president of a newly formed group called the American-Soviet Medical Society. In 1943 he was also elected a member of the Academy of Science of the U. S. S. R. In 1931 special ceremonies, including the unveiling of a portrait,

were held at Harvard to mark his completion of twenty-five years as professor of physiology.

Dr. Cannon always maintained an interest in medical education; early in his career he suggested the "case method" of teaching medicine. His research during World War I resulted in new concepts for the treatment of shock. Much of his work dealt with organic conditions as affected by emotion, and his investigations resulted in the established practices for controlling these disturbances. His prolific contributions to scientific literature reflect his diversified interests, his frequent articles describing movements of the stomach and intestine, internal secretions, effects of emotional excitement, surgical shock, organic stabilization, chemical mediation of nerve impulses, medical education and the defense of medical research. The books written by Dr. Cannon have been exceptional. The list includes *A Laboratory Course in Physiology*, 1910, *The Mechanical Factors of Digestion*, 1911, *Bodily Changes in Pain, Hunger, Fear and Rage*, 1915, revised edition, 1929; *Traumatic Shock*, 1923, *The Wisdom of the Body*, 1932, revised edition published in 1939, *Digestion and Health*, 1936, and *Autonomic Neuro-Effector Systems*, with Arturo Rosenblueth, in 1937. Just recently his autobiography, called "The Way of an Investigator," was published. It reflects the geniality, the philosophy and the inspiration that were the basic factors in a career that achieved greatness.



WALTER BRADFORD CANNON, M.D., 1871-1945

Bernard Isaac Comroe * Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1929; born in York, Pa., Oct. 22, 1906; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Rheumatism Society and the Philadelphia College of Physicians; associate in medicine at his alma mater, where he was chief of the medical division of the student health service; on the faculties of the dental school and graduate school of the University of Pennsylvania; senior ward physician at the Hospital of the University of Pennsylvania, where he served an internship and a residency; during his senior year at the University of Pennsylvania, awarded the Spencer Morris prize, the alumni medal and prize and the Charles A. Oliver Memorial prize; responsible for circulating a bulletin containing news concerning the University of Pennsylvania School of Medicine and Hospital, which was sent to graduates of the school serving in the armed forces throughout the world during World War II; author of *Arthritis and Allied Conditions*; joint author of *Internal Medicine in Dental Practice*; editor of many editions of *Medical Technique Book of the Hospital of the University of Pennsylvania*; died at his home in Overbrook Hills, September 14, aged 38.

Charles Melville Bacon * Chicago; Rush Medical College, Chicago, 1914; associate in medicine at the University of Illinois College of Medicine; at one time clinical assistant in pediatrics and clinical associate in medicine at his alma mater; for many years medical director for Marshall Field & Company; served during World War I; on the staff of the Presbyterian Hospital, where he died July 12, aged 59, of coronary thrombosis.

Herbert Kitto Beauchamp * Phoenix, Ariz., Medical College of Indiana, Indianapolis, 1904; at one time one of the physicians in charge of the Territorial Asylum for the Insane; died May 24, aged 69.

James Milton Bonham, Hobart, Okla.; Kansas City (Mo.) Medical College, 1901; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Rotary Club and chamber of commerce; district chairman of Procurement and Assignment of Physicians for western Oklahoma; on the staff of the General Hospital, where he died July 14, aged 75, of virus pneumonia complicated by hepatitis.

Ellsworth T. Busching, Wyoming, Ohio; Medical College of Ohio, Cincinnati, 1893; medical examiner for the Metropolitan Life Insurance Company for many years; at one time member of the board of education and board of health of Elmwood Place; died June 3, aged 77.

David W. Byrd, Norfolk, Va.; Meharry Medical College, Nashville, Tenn., 1900; one of the founders and past president of the National Medical Association; on the staff of the Norfolk Community Hospital; died July 6, aged 76, of coronary occlusion.

Eugene A. Callahan, Carlisle, Ark.; University of Arkansas School of Medicine, Little Rock, 1903; member of the American Medical Association; served as president of the Arkansas State Medical Board and of the Alumni Association of his alma mater; vice president and chairman of the board of the Citizens Bank in Carlisle; a member of the Arkansas Selective Service Board of Appeals; died May 29, aged 67.

Stark Michael Casper @ Louisville, Ky.; University of Oklahoma School of Medicine, Oklahoma City, 1923; interned at the SS Mary and Elizabeth Hospital, where he served on the staff for many years; died June 17, aged 48.

James Christopher Clarke, Los Angeles; McGill University Faculty of Medicine, Montreal, Que., Canada, 1909; served during World War I; died June 7, aged 62.

Wendell Phillips Collette, Norfolk, Va.; Howard University College of Medicine, Washington, D. C., 1929; member of the staff of the Norfolk Community Hospital; died July 16, aged 43.

Stanton Kemble Crawford, Lakewood, Ohio; University of Wooster Medical Department, Cleveland, 1888; served on the staff of the Lakewood Hospital; died July 22, aged 83, of coronary thrombosis.

James Claude Cunningham @ Little Rock, Ark.; Maryland Medical College, Baltimore, 1903; emeritus professor of obstetrics and gynecology at the University of Arkansas School of Medicine; died June 18, aged 64.

Alexander C. Dockstader, Hastings, Minn.; the Hahnemann Medical College and Hospital, Chicago, 1880; died July 16, aged 90.

Leonidas L. Duncan, Hollow Rock, Tenn.; University of Tennessee Medical Department, Nashville, 1891; member of the American Medical Association; died in the Baptist Hospital, Memphis, June 25, aged 83.

George Craig Eggleston, Amelia C. H., Va.; Medical College of Virginia, Richmond, 1893; member of the American Medical Association; died in the Stuart Circle Hospital, Richmond, June 14, aged 73.

James S. Fitzhugh, Central City, Ky.; Hospital College of Medicine, Louisville, 1902; member of the American Medical Association; formerly McLean County physician and health officer; died June 18, aged 74.

Frederick William Fletcher, Hinton, Iowa; John A. Creighton Medical College, Omaha, 1912; member of the American Medical Association; also a graduate in pharmacy; served during World War I; died in a hospital at Sioux City September 12, aged 65, of cerebral hemorrhage following an illness of over two years of endarteritis obliterans.

Alfred M. Ganaway, Nashville, Tenn.; Northwestern Medical College, St. Joseph, Mo., 1892; served during World War I; formerly associated with the Indian Service; died June 23, aged 77.

Joseph Glamkowski @ Brooklyn; Long Island College Hospital, Brooklyn, 1920; served as president of the North Brooklyn Medical Society and as treasurer of the Brooklyn Academy of Pediatrics; chief pediatrician at St. Cecilia's Hospital and on the visiting staffs of St. Catherine's and Greenpoint hospitals; died June 17, aged 50.

Louis Julius Hajdusek, Chicago; Chicago College of Medicine and Surgery, 1912; died July 30, aged 58.

William Clinton Haydon, Princeton, Ky.; Southwestern Homeopathic Medical College and Hospital, Louisville, 1905; member of the American Medical Association; died June 24, aged 64.

Charles Howard Lisle, New Hampshire, Ohio; Starling Medical College, Columbus, 1903; on the staff of the Memorial Hospital in Lima; died June 19, aged 68.

Daniel Erastus Little @ Eufaula, Okla.; Ohio Medical University, Columbus, 1903; served during World War I; county superintendent of health; died in Oklahoma City May 31, aged 66.

Otto Wilber McClusky, Chemawa, Ore.; Rush Medical College, Chicago, 1905; instrumental in building the hospital at Carrington, N. D.; served during World War I and as physician and surgeon in the Civilian Conservation Corp.; physician and surgeon for the Indian School, where he was in charge of the 50 bed hospital; died in the Deaconess Hospital, Salem, August 16, aged 71, following a cerebral hemorrhage.

James Jackson Ragan Jr., Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1943; interned at the Johns Hopkins Hospital; died May 18, aged 26.

Isaac J. Sparks, Amarillo, Texas; Dallas Medical College, 1904; also a minister; past president of the Lamb-Bailey-Hockley-Cochran Counties Medical Society; died in Fort Worth June 6, aged 72.

Clarence C. Weist, Columbus, Ohio; Starling Medical College, Columbus, 1898; died in the Grant Hospital June 13, aged 67.

DIED WHILE IN MILITARY SERVICE

George Bruce Crist, Frederick, Md.; University of Maryland School of Medicine, Baltimore, 1914; member of the American Medical Association; served during World War I; entered the medical reserve corps of the U. S. Army as a captain on Dec. 24, 1923; began active duty as a major on Aug. 14, 1941; died in Fredericksburg, Va., April 8, 1944, aged 52, of coronary occlusion.

John Francis Geraghty @ Passed Assistant Surgeon, Lieutenant, U. S. Navy, Lansdowne, Pa.; Jefferson Medical College of Philadelphia, 1941; interned at the Philadelphia General Hospital; began active duty as a lieutenant (jg) in the medical corps of the U. S. Navy on July 13, 1942; promoted to lieutenant; died in Luichow Peninsula, China, June 24, aged 30, of an injury, type unknown.

George Lewis Greaser, Altoona, Pa.; Jefferson Medical College of Philadelphia, 1939; served an internship at the Charles S. Wilson Memorial Hospital in Johnson City, N. Y.; began active duty as a first lieutenant in the medical reserve corps of the U. S. Army on July 1, 1941; major, medical corps, Army of the United States; died in England June 11, 1944, aged 32, in an aircraft accident.

Alfred Labenski, Nanticoke, Pa.; Jefferson Medical College of Philadelphia, 1939; interned at the Mercy Hospital in Wilkes-Barre; entered the medical corps, Army of the United States, on May 21, 1942, as a first lieutenant; promoted to captain; died in the Walter Reed General Hospital, Washington, D. C., Aug. 19, 1943, aged 34, of adenocarcinoma of the left kidney with metastases.

Howard Bloom Mason, Freehold, N. J.; Syracuse University College of Medicine, 1925; member of the American Medical Association; fellow of the American College of Surgeons; member of the board of education of Freehold; interned at the Syracuse Memorial Hospital in Syracuse, N. Y., and the New York Post-Graduate Medical School and Hospital in New York; served as surgeon at the Fitkin Memorial Hospital in Neptune and consulting traumatic surgeon at the New Jersey State Village for Epileptics in Skillman; commissioned a lieutenant commander in the medical corps, U. S. Naval Reserve, on July 16, 1942; assigned to the U. S. Naval Hospital, Naval Operating Base in Norfolk, Va.; served in the Pacific, where he saw action at Leyte and Iwo Jima; died in the U. S. Naval Hospital in St. Albans, N. Y., July 14, aged 44, of arteriosclerotic coronary heart disease.

Howard Myers Scull, Langhorne, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1939; served an internship at the Presbyterian Hospital in Philadelphia; entered the medical reserve corps of the U. S. Army as a first lieutenant on June 14, 1939; began active duty on July 1, 1941; captain, medical corps, Army of the United States; died in the European area July 4, 1944, aged 30, in an airplane accident.

Current Medical Literature**AMERICAN**

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Archives of Surgery, Chicago

50:277-340 (June) 1945

- Some Recent Accomplishments of Thoracic Surgery W. E. Adams —p. 277.
 Meckel's Diverticulum Containing Calculi. A. W. Allen and G. A. Donaldson —p. 286.
 Lymphosarcoma Primary in Appendix: Study of 23 Cases G. Knox —p. 288.
 Methods for Reducing Pain Following Hemorrhoidectomy. Technique and Results in 72 Cases J. C. Owings.—p. 293.
 *Periarterial Infiltration in Diagnosis and Treatment of Migraine. Experimental and Clinical Experiences with Eucupine and Procaine Hydrochloride R. Patzer, V. Derbes and H. Engelhardt —p. 296.
 Pneumothorax Resulting from Dissecting Gastric Ulcer: Review of Literature and Report of Case. P. B. Hudson, L. C. Gay and H. I. Newman —p. 301.
 Desmoid Tumor C. C. Green —p. 304.
 Unusual Ileocolic Intussusception M. Paul —p. 307.
 Review of Urologic Surgery. A. J. Scholl and others —p. 309.

Periarterial Infiltration in Migraine.—According to Patzer and his associates, because of its prolonged action it was thought that eucupine (isoamylhydrocupreine) might prove useful in periarterial infiltration for the relief of migraine. The technic of infiltration is simple. The superficial temporal artery of the involved side is located external to the zygoma, and approximately 2 cc. of 0.1 per cent eucupine in 1 per cent procaine solution is injected. Often it is necessary to inject subsidiary painful points which are discovered by palpation. The results were beneficial in two ways. The majority of the patients had immediate relief, though failures were encountered, and the frequency of attacks was decreased as a rule.

Arizona Medicine, Phoenix

2:211-272 (July) 1945

- Mesothelioma of Diaphragm M. Rosenthal and B. P. Grissell —p. 231.
 Rational Basis for Endocrine Therapy. R. Jennett —p. 234.
 How the Press Aids Hospitals Toward Better Public Relations B. P. Lynch —p. 237.
 Serology and Diagnosis of Syphilis T. T. Frost —p. 239.

Epidemiological Information Bull., Washington, D. C.

1:453-494 (July 15) 1945

- Relapsing Fever in North Africa and Europe, 1943-1945 G. Stuart. —p. 453.
 Cholera Epidemic in Chungking —p. 465.
 Diseases Among Refugees in Kweichow —p. 466.
 Typhus Among Displaced Persons in Europe —p. 466.
 Typhus in North Africa —p. 468.
 Case Notification in Europe —p. 468.
 Current Reports on Prevalence of: A. Plague, Cholera, Yellow Fever, Smallpox and Typhus —p. 471.
 Id.: B. Measles, Poliomyelitis, Cerebrospinal Meningitis, Scarlet Fever and Dysentery —p. 484.
 Trend of Relapsing Fever in European Area and Equatorial Africa —p. 488.

Illinois Medical Journal, Chicago

88:1-70 (July) 1945

- Carcinoma of Larynx: Present Concepts of Diagnosis and Treatment P. H. Holinger —p. 19.
 Treatment of Subacute Bacterial Endocarditis: Recovery with Penicillin L. F. Traut —p. 24.
 Chemotherapy. K. A. Meyer —p. 27.
 Gold Therapy in Rheumatoid Arthritis G. B. Stericker —p. 33.
 Activities of Division of Maternal and Child Hygiene H. V. Huller. —p. 35.

Journal of Experimental Medicine, New York

82:1-76 (July) 1945

- Experimental Infection of Human Body Louse *Pediculus Humanus* Corporis, with Murine and Epidemic Louse Borne Typhus Strains J. C. Snyder and C. M. Wheeler.—p. 1.
 Induced Antibodies That React in Vitro with Sedimentable Constituents of Normal and Neoplastic Tissue Cells: Presence of Antibodies in Blood of Rabbits Carrying Various Transplanted Cancers W. F. Friedewald and J. G. Kidd —p. 21.
 Incidence and Specificity of Antibody for Distinctive Constituent of Brown Pearce Tumor. I. MacKenzie and J. G. Kidd —p. 41.
 Protein Metabolism and Protein Reserves During Acute Sterile Inflammation: High Protein Intake Compensates for Increased Catabolism S. C. Madden and W. A. Clay.—p. 65.

Journal of Pediatrics, St. Louis

27:1-64 (July) 1945

- *Status Thymicolymphaticus J. L. Carr.—p. 1.
 Production of Acidosis in Premature Infants by Protein Milk. D. C. Darrow, M. M. da Silva and S. S. Stevenson —p. 43.
 *Salicylate Therapy in Rheumatic Fever in Children. L. M. Taran and M. H. Jacobs, with the technical assistance of B. Krautman —p. 59.
 *Poliomyelitis and Recent Tonsillectomy. J. A. Anderson —p. 68.
 Quantitative Study of Saliva Glucose M. L. Blatt, M. Kern and Cecelia M. Kortuem.—p. 71.
 Allergic Child in Camp. J. Glaser —p. 75.
 Congenital Dermal Sinus as Source of Meningeal Infection: Report of 2 Cases, 1 Associated with Recurrent Meningitis J. I. Waring and H. R. Pratt Thomas —p. 79.
 Joseph Brennemann Library. M. Kappes —p. 84.

Status Thymicolymphaticus.—In the past six years, according to Carr, there were seen at San Francisco coronor's office 520 cases of sudden death in children below 10 years of age. Among these were 105 children who died apparently of suffocation. Among these there were 49 cases in which death was associated with pathologic changes in the thymus and the lymphatic system. This group offers examples of death from asphyxia following tracheal compression from an enlarged thymus gland, deaths from partial obstruction by an enlarged thymus during or following anesthesia, cases showing a combination of thymic enlargement, lymphatism and anaphylaxis, and cases of adrenal insufficiency associated with thymus hyperplasia. The widespread belief that an enlarged thymus in itself will not cause asphyxia by tracheal and auricular compression and distortion can be disproved at necropsy whenever studies are done on cases of sudden death in children. However, when once accepted, status thymicolymphaticus and related terms become far too easy to use. Instead of being reserved for specific cases to which they properly apply, such diagnoses are generically used to explain many sudden deaths in children when there is no other obvious cause. Such diagnostic abuses have in the main been responsible for the disrepute of the thymic status. Orderly necropsy proceedings will reestablish the relationship of enlarged thymus glands, lymphatism, adrenal hypoplasia and such conditions, either isolated or related, as true causes of death.

Salicylate Therapy in Rheumatic Fever in Children.

Taran and Jacobs present observations on the use of massive doses of sodium salicylate in 64 children with active rheumatic disease. Their observations suggest that large doses of salicylates sufficient to raise the plasma salicylate level to from 350 to 450 micrograms per cubic centimeter produce a prompt and effective subsidence of all clinical and laboratory evidence of rheumatic activity in children with rheumatic polyarthritis. The oral route of administration is as effective as the intravenous. Experience further suggests that massive doses of salicylates in acute rheumatic carditis are equally effective in promptly suppressing all clinical and laboratory evidence of rheumatic activity. The intravenous route of administration seems to be hazardous. The usual small doses of salicylates have no therapeutic value in rheumatic carditis in children.

Poliomyelitis and Recent Tonsillectomy.—In 1943 the state of Utah experienced the most severe epidemic of poliomyelitis in its history and suffered more cases per capita of population than any other state. Because of limited facilities for contagious diseases only those patients were hospitalized who were reported by the local physician to have bulbar or respiratory involvement to the exclusion of the spinal cases.

This resulted in the admission of practically all of the clinically recognizable bulbar and respiratory cases. Of a total of 400 cases 136 were hospitalized. The frequency with which a history of recent tonsillectomy was encountered in cases of the bulbar or bulbo-spinal type was the reason that a questionnaire was sent to 334 doctors in the state requesting the following information: 1 The number of tonsillectomies on children between 3 and 16 years of age done by them in July, August and September of 1943. 2 The number of cases of polymyositis following recent tonsillectomy in these three months. 3 The age, sex and name of the child. 4 The interval between operation and the onset of symptoms. 5 The doctor's name, if he wished, or 6 The country in which he practiced. It was observed that 43 per cent of the bulbar and bulbo-spinal cases were preceded by a tonsillectomy within thirty days of the onset. The incidence of polymyositis in recently tonsillectomized children was found to be 26 times greater than in the general child population. The incidence of the bulbar and bulbo-spinal type of polymyositis was found to be sixteen times greater in recently tonsillectomized children than in the general child population.

Journal of Pharmacology & Exper. Therap., Baltimore 84:1-92 (May) 1945

- Absorption of Sulfonamides in Chick and Canary and Its Relationship to Antimalarial Activity P B Marshall—p 1
Method for Determination of Analeptic Activity L G Goodwin and P B Marshall—p 12
Pharmacologic Properties of Some Monoamines L G Goodwin and P B Marshall—p 16
Stimulation and Depression of Central Nervous System by Derivatives of Barbituric and Thiobarbituric Acids P K Knoefel—p 26
Studies on Estimation Adsorption and Precipitation of Stilbamidine J D Fulton and T W Goodwin—p 34
Effect of Light on Various Aromatic Dimidines in the Solid State J D Fulton and T W Goodwin—p 42
Additional Steroids with Luteoid Activity G Masson and H Selye—p 46
Toxicology of 1,2-Dichloroethane (Ethylene) III Its Acute Toxicity and Effect of Protective Agents L A Heppel, P A Neal, T L Perrin, K M Endicott and V T Porterfield—p 53
Phenol Conjugation IV Effect of Several Inhibitors R H DeMeio and R I Arnold—p 64
Synthetic Anticonvulsants 5,5-Disubstituted Hydantoins Containing a Hetero Atom in the Side Chain H H Merritt, T J Putnam and W G Bywater—p 67
Susceptibility of Birds to Insulin as Compared with Mammals K H Chen, R C Anderson and Nih Mase—p 74
Chemical Basis of Marijuana Activity S Loewe—p 78
Effectiveness of Caffeine (1,3,7-Trimethylxanthine) Against Fatigue I Huidobro and E Amenbar—p 82

Effectiveness of Caffeine Against Fatigue.—Huidobro and Amenbar point out that Foltz and his co-workers have demonstrated that caffeine increases in human subjects not only the capacity for muscular work in rested persons but also the speed of muscular recuperation in fatigued persons. In human experiments it is impossible to determine whether the caffeine achieves its effect through a central mechanism, through action on the neuromuscular junction or through stimulation of the muscle directly. Experiments on frogs indicate that the xanthine derivatives have a direct action on muscle itself and that they are even capable of producing an increase of muscular contraction when a muscle is stimulated indirectly through its nerve. Studies were made by the authors on cats anesthetized with dial or pentobarbital sodium or on cats which had undergone decerebration to determine the effect of caffeine injected intra-arterially in doses of 0.007 to 0.035 Gm. Observations were made on the contractions of skeletal muscles on the neuromuscular synaptic mechanism and on the superior cervical ganglion stimulated by acetylcholine. It was found that caffeine produces an increase in the tension developed by muscle which is being stimulated indirectly. Caffeine can produce tension in normal muscle as well as in denervated muscle. When denervated muscle is stimulated directly, caffeine can also increase the amplitude of contractions. Caffeine is able to augment not only the amplitude of contractions of a muscle stimulated by means of acetylcholine but also those of the contracting membrane similarly stimulated by the latter drug. The enhancing action of caffeine on the contractions of the contracting membrane stimulated by acetylcholine is due to the effect the caffeine

exerts on the ganglion. Caffeine augments the action of neostigmine. The mechanism of the action of caffeine on the neuromuscular junction consists in lowering the excitatory threshold of acetylcholine.

Journal of Urology, Baltimore 53:753-843 (June) 1945

- Dissecting Aortic Aneurysm Involving Renal Artery and Simulating Acute Nephrolithiasis A Blain III, T P Glynn and T Hnatzka—p 753
Horseshoe Kidney Study of 32 Autopsy and 9 Surgical Cases E F Nation—p 762
Promin in Treatment of Renal Tuberculosis S L Wang and F C Gonzalez Iman—p 769
Congenital Ureterocele with Prolapse Through Urethra and Strangulation S P Hurwitz and K B McDonough—p 773
Obstruction of Ureter in Children C J E Kiekham—p 776
Teaching of Endoscopic Prostatic Surgery R W Barnes and C E Heitman—p 781
Diphallus (Double Penis) S Blanco—p 786
Urinary Infection Review of 33 Cases in Negroes W S Qumland—p 791
March Hemoglobinuria Report of 2 Cases W W Lundahl and M E Fatter—p 805
Study of Syphilis in Male Relative to Fertility I Michelson—p 808
Ambulatory (Duty Status) Sodium Penicillin Therapy of Gonorrhea in Male D L Cohen and M L Grover—p 812
Treatment of Genitourinary Tract Infections with Penicillin O I Nolan—p 817
*Studies on Etiology of Hunner Ulcer T O Powell—p 823

Etiology of Hunner Ulcer.—In his investigations on the pathologic aspects of Hunner ulcer Powell was impressed by the similarity of the microscopic picture of progressive chronic lymphatic edema and the classic histologic description of clusive ulcer. In a study of vesical lymphatics he gained the impression that the microscopic picture in a typical case of clusive ulcer is identical with a hypothetical case of chronic lymphatic edema in that area. Histologic sections of dogs' bladders with partial lymphatic obstruction were not unlike those in the majority of reported cases of clusive ulcer. The pathologic process can be better appreciated grossly at the time of operation than later when the tissues are fixed and shrunken. The history in most instances indicates a chronic process over a long period, averaging five to ten years. Probably the majority of patients with the same early history overcome their lymphatic disturbance and recover. Only the rare case with several mechanisms coming into play proceeds to the end result of Hunner ulcer.

Maine Medical Association Journal, Portland 36:117-134 (July) 1945

- Traumatic Rupture of Spleen L A Guite—p 117
Use of Insulin in Malnutrition Due to Nervous Dyspepsia Report of Case M Bacon—p 120
36:135-148 (Aug) 1945
Government, Physician and National Health L H Berrie—p 135
Senate Bill 191 A G Lustis—p 139

New England Journal of Medicine, Boston 233:55-80 (July 19) 1945

- Anesthesia by Combined Intravenous Pentothal Sodium and Local Nerve Block J C McCann—p 55
Death from Sulfadiazine with Agranulocytosis Jaundice and Hepatosis Report of Case H R Siegler, J N Patterson and W A Johnson—p 59
Tumor of Carotid Body H K Sowles—p 62
Psychiatric Rehabilitation V P Williams—p 64
Chronic Periapical Abscess, Thrombophlebitis of Superior Mesenteric, Splenic and Portal Veins Multiple Liver Abscesses and Pancreatic Abscesses W Richardson—p 69
Suppurative Otitis Media and Bilateral Mastoiditis Bilateral Hemorrhage into Adrenal Glands D Morelli—p 73

233:81-142 (July 26) 1945

- Surgical Treatment of Carcinoma of Rectum F P Hayden—p 81
First Year of Emergency Maternity and Infant Care Program in Massachusetts Florence L McKay, Sallie Saunders and Lita Bloom—p 85
Acute Ulcerative Colitis J M Sulzberger—p 87
Body Fluid Physiology Relation of Tissue Composition to Problems of Water and Electrolyte Balance D C Darrow—p 91
Accessory Spleen R R Linton—p 128
Myocardial Infarction of Papillary Muscle, Healing with Deformity of Mitral Valve, Organizing Pneumonitis with Extensive Intra-Alveolar Fibrosis of All Lobes E O Wheeler—p 132

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:795-830 (June 9) 1945

- *Effects of Protein Diet on Infective Hepatitis. E. M. Darmady.—p. 795.
Civilian Dyspepsia. F. A. Jones and H. Pollak.—p. 797.
Nutritional Macrocytic Anemia and Animal Protein of Diet. G. F. Taylor and P. N. Chhuttani.—p. 800.
Diagnosis of Doubtfully Penetrating Abdominal Wounds. C. Donald.—p. 802.
*Fatality of Gas Gangrene in Relation to Treatment. M. G. MacFarlane.—p. 803.
Staphylococcal Pyopericardium Treated with Penicillin. H. B. Noiman and R. M. Ainsworth.—p. 806.

Effects of Protein Diet on Infective Hepatitis.—Darmady reports 61 cases of infective hepatitis, of which 32 were treated with high protein diet with superadded vitamin B complex and 29 by a classic low fat diet in which the protein was not augmented. Those on the experimental diet did not show improvement over those in the control series. This is in striking contrast to the claims made by Beattie, who has stated that it is possible to reduce the time spent in the hospital with hepatitis by as much as 37 per cent by dietetic measures alone. He further states that, roughly, the average stay in the hospital is inversely proportional to the daily intake of protein. The author cites factors which suggest that the effect of protein is maximal as a protective but not as a restorative measure and that, as protein deficiency is not found in the Royal Air Force, this may be the reason for the similarity of the two series. It is clear that no harm arises as the result of the increased protein.

Fatality Rates of Gas Gangrene.—MacFarlane says that, out of a total of 295 reports of anaerobic infections on army form I 1241 between the beginning of the campaign in Sicily and June 1944, 185 reports have been considered to be typical of cases of gas gangrene. The reduction in the death rate when antitoxin and bacteriostatic drugs were used in addition to surgical measures affords a striking testimony to the value of the combined method of treatment. However, the ancillary measures had their limitations in cases in which surgical excision was impossible. There was no significant difference in the death rate between those who received penicillin systemically and those who did not, even among cases in which a decrease might legitimately be expected if effective chemotherapy could compensate for inadequate surgical excision. This implies not that penicillin is without value in the treatment of gas gangrene but simply that its value as a specific treatment in the sense that the death rate was lower among those treated is not proved. Whether penicillin controlled the bacterial infection is another matter and one difficult to assess when several measures were often employed. It seems possible that when there is a failure of circulation through the infected area the local application of penicillin might be the more effective route. In a number of cases the immediate cause of death was renal failure rather than a fulminating toxemia, and there is a similarity between this type of case and the crush syndrome. The hypothesis that a toxic substance is absorbed from muscle damaged by trauma or ischemia is not new, but lately, with the recognition of the crush syndrome and the occurrence of massive limb wounds, it has aroused much interest. It is not unlikely that a necrotic bacterial toxin, such as *Clostridium welchii* alpha toxin, might accelerate or augment the liberation of a "muscle toxin" and thus have a potent secondary effect in addition to a direct action on a vital organ. The combined method of treatment with surgical measures, intravenous antitoxin and bacteriostatic drugs was highly effective in reducing the death rate in cases of gas gangrene of the leg or arm. The death rate in cases of gangrene of the thigh, buttock or shoulder region was approximately 40 per cent in spite of such treatment, even among those who received penicillin systemically.

Medical Journal of Australia, Sydney

1:529-546 (May 26) 1945

- Blood Groups, Subgroups, M, N Types and the Rh Factor in Fijians. R. T. Simmons, J. J. Graydon and G. Barnes.—p. 529.
Pelvic X-Ray Measurements and Pelvic Contraction. E. W. Frecker.—p. 532.
Radiology of Pelvic Types and Their Obstetric Significance. D. G. Maitland.—p. 537.

1:553-576 (June 2) 1945

- Management of Peptic Ulcer. L. J. J. Nye.—p. 553.
Urinary Colic Due to Crystalluria and Calculi in Hot Humid Climates. T. F. Rose.—p. 558.
Clinicopathologic Study of 5 Cases of Ependymoma. C. Swan.—p. 561.

Practitioner, London

155:1-64 (July) 1945

- Organization of Cancer Service. E. R. Carling.—p. 1.
Recent Advances in Knowledge of Malignant Disease. W. E. Gye.—p. 5.
Surgical Treatment of Malignant Disease. G. Keynes.—p. 14.
Radiotherapy in Treatment of Malignant Disease. D. W. Smithers and W. V. Mayneord.—p. 20.
Mortality from Malignant Disease. A. B. Hill.—p. 27.

Tubercle, London

26:73-96 (May-June) 1945

- Rapid Growth of M. Tuberculosis in Embryonic Tissue Medium Containing Penicillin. I. Friedmann.—p. 75.
Tuberculosis in Belgium During War. Gengou.—p. 82.
Treatment of Tuberculous Empyema by Aspiration Followed by Instillation of Promanide with Phemeride. T. F. Jarman and G. J. Morris.

Hospital, Rio de Janeiro

27:877-1045 (June) 1945. Partial Index

- Diagnosis and Clinical Evaluation of Pulmonary Tuberculosis. L. Saye.—p. 877.
*Penicillin in Noma. C. Pernetta, H. De Martino, N. J. Farah and S. P. Moreira.—p. 893.

Penicillin in Noma.—Pernetta and his collaborators report a case of noma in a child 3 years of age with generalized tuberculosis and with *Ascaris lumbricoides* infection. The treatment consisted in intramuscular injections of 10,000 Oxford units of penicillin every three hours and daily local injections of a solution of 5,000 Oxford units in isotonic solution of sodium chloride for three consecutive days. The total dose of penicillin administered was 300,000 Oxford units. Spread of noma was arrested after the first injection, the necrotic tissues sloughed away and the wound rapidly healed.

Acta Dermato-Venereologica, Stockholm

25:207-288 (Nov.) 1944

- Gonococcal Vulvovaginitis in Little Girls: Clinical Aspects and Treatment with Sulfathiazole: 107 Cases. M. M. J. Decony and P. Lequime.—p. 207.
Culture of Gonococci in Gonorrhea. H. Engelson and E. Larre.—p. 242.
Finger Infection Caused by *Fusobacterium* and *Spirochetes*, with Discussion of *Fusospirochetal* Infection of Fingers. O. Lahelle.—p. 264.
Case of Seborrhea with Comedones in Conjunction with Facial Paralysis. P. H. Nexmand.—p. 275.
*Genital Diphtheria Transmitted by Sexual Intercourse. T. M. Vogelsang and R. S. Melsom.—p. 281.

Genital Diphtheria Transmitted by Sexual Intercourse.—Vogelsang and Melsom report the case of a man, aged 32 who consulted one of the authors for a genital sore on the fore skin, which had a grayish white appearance and was indurated. *Treponema pallidum* could not be found and Wassermann, Kahn, Meinicke and Müller reactions were negative. Two weeks later the foreskin and penis showed considerable swelling, and phimo-sis had set in. The patient had similar sores on one finger and on the thigh. Bacteriologic examinations revealed diphtheria bacilli in all three sores. The fauces were injected and also yielded diphtheria bacilli. The man's mistress was found to have a genital sore and erosions which were free from *Treponema pallidum* but contained diphtheria bacilli. Her throat and nose showed no signs of diphtheria. It is supposed that in the man autoinoculation with diphtheria bacilli proceeded from fauces to penis and subsequently to other sites. The lesion on the penis seems to have appeared from four to five days earlier than the vulvar lesion in the woman, and it is assumed that the infection was transmitted from the man to the woman.

Book Notices

Microbial Antagonisms and Antibiotic Substances. By Selman A. Waksman, Professor of Microbiology, Rutgers University, New Brunswick, N. J. Cloth. Price, \$3.75. Pp. 350, with 35 illustrations. New York: Commonwealth Fund; London: Oxford University Press, 1945.

The application of antibiotics to the management of human disease has stimulated a tremendous interest in the subject of microbial antagonisms. It is indeed fortunate that Professor Waksman has responded to the renewed interest in this field with an authoritative and comprehensive survey of the subject. Knowledge of the antagonistic interrelationships of microbes is not recent. These phenomena have attracted the attention of soil biologists for many years. The author's original observations are well known to students in this field. His purpose in this monograph is to present a review of the antagonistic activities of micro-organisms, with emphasis on these associations as they occur in nature and their relation to human, animal and plant diseases, and to discuss the chemistry and mode of action of the known antibiotics and their application to the control of disease.

The subject matter is presented in fourteen chapters. The introductory chapters are concerned with microbial antagonisms as they occur in nature. This is a fascinating exposition of biologic processes and reveals how the very existence of man is dependent on these antagonisms. The nature of these antagonistic relationships is discussed, and then there are presented methods for isolating antagonistic micro-organisms and measuring the antibiotic action. A large number of antibiotic substances have been obtained from various sources, many of them not being clearly defined at present. This information is detailed in four chapters and includes antagonists from bacteria, actinomycetes, fungi and microscopic animal forms. It is of interest that some micro-organisms, including viruses, are capable of destroying viruses. The practical significance of this knowledge is obvious, but this aspect of the subject has been little explored. There is an excellent summary of present knowledge of the chemistry of antibiotic substances followed by a discussion of the mode of action. Though the practical application of these substances to the control of human, animal and plant diseases is presented, the information will prove to be of little immediate use to the clinician.

The text is presented in a scholarly fashion and it is unusually well documented. A bibliography of 1,016 references is appended. It is particularly gratifying to see the subject developed along historical lines. The illustrations are first rate. The volume concludes with a helpful classification of antibiotic substances and a glossary. There is a general index as well as an index of micro-organisms. This monograph will be read by many students and investigators working in this field. Precise information concerning the treatment of human disease is not available for the clinicians, and therefore the monograph cannot be recommended for this purpose. On the other hand, the well informed physician will profit by a careful reading of the book.

Essentials of Body Mechanics in Health and Disease. By Joel E. Goldthwait, M.D., F.A.C.S., LL.D., Lloyd T. Brown, M.D., F.A.C.S., Loring T. Swalm, M.D., and John G. Kuhns, M.D., F.A.C.S. With a chapter on the Heart and Circulation as Related to Body Mechanics by William J. Kerr, M.D., F.A.C.P. Fourth edition. Cloth. Price, \$5. Pp. 337, with 128 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1945.

The senior author of this standard volume is a pioneer in the teaching and practice of this important subject. The national need for physical fitness has been shown in the mobilization of the nation's strength for war. In the armed forces the aim has been to secure strength, agility and endurance. Good body mechanics is essential in obtaining and maintaining all three. The large number of rejections in selective service examinations proves the importance of the subject. Medical examiners agree that most of the defects causing rejection are preventable. Some deformities and defects of adults could have been prevented by training in good body mechanics during childhood. Many of those rejected for various physical deformities could be rehabilitated or brought to greater usefulness and efficiency by appropriate training. It is possible through training in cor-

rect body mechanics to accelerate the return of both good function and health by teaching the body to work more efficiently. The proper training for the greatest physical efficiency and the early recognition and treatment of defects which lead to disease are among the chief concerns of the physician. Life expectancy has increased greatly during the past two decades. It is the duty of the physician to keep older persons as useful as possible and free from pain. Aging is a physiologic process which cannot be prevented. However, much can be done to minimize disability, to delay the appearance of disease and to keep functional and mental capacity at a high level. In this attempt the principles of treatment outlined in this book will be found helpful. In this edition many new illustrations have been added. The chapter on disabilities of the feet has been rewritten. The entire book has been reviewed and revised.

A Synopsis of Medicine. By Sir Henry Letheby Tidy, K.B.E., M.A., M.D. Eighth edition. Cloth. Price, \$7.50. Pp. 1,215. Baltimore: William Wood & Company, 1945.

At first glance one wonders whether there is a worthwhile indication for any synopsis of medicine. However, the fact that this book has lived successfully for twenty years and is in its eighth edition seems to justify its place in the medical library. The author makes no pretense of substituting this work for a textbook but recommends it to medical students who are facing examinations, to the hurried general practitioner and to the examiner or teacher who must prepare a lecture hurriedly. This edition follows Osler's *Principles and Practice of Medicine* essentially in synopsis form. The etiology, symptoms, pathology and treatment are summarized completely and thoroughly. Since the last edition there have been many changes made, especially in therapy, mainly because of the use of the sulfonamides and penicillin. Also rewritten are many diseases in which radical changes and progress have occurred in the six years since the seventh edition was published. For the limited use that a synopsis of medicine has, this book is highly recommended.

Trichomonosis vaginalis. Por Manuel Luis Perez y Oscar Blanchard. Paper. Pp. 173, with 26 illustrations. Buenos Aires: Libreria y Editorial "El Ateneo," 1944.

Among the subjects covered in this book are the history of *Trichomonas vaginalis*, vaginitis as a clinical and pathologic entity; anatomy, physiology and physiopathology of *Trichomonas vaginalis*; methods of identification of the organism; experimental infection in both animals and human beings; clinical symptoms and signs; differentiation between vaginal trichomoniasis and intestinal and buccal types; associated pathogenic organisms; complications of *Trichomonas vaginalis* vaginitis; treatment of the condition, and extravaginal complications and genitourinary disturbances in men as the result of vaginitis. The authors have reviewed practically every article written on the subject of *Trichomonas vaginalis* vaginitis, and this, of course, includes a huge number of papers contributed by Americans. The book is written in easily understandable Spanish and it is beautifully illustrated not only in black and white but also in color in the form of drawings and photographs. The publishers have done their part magnificently because the paper is of excellent quality, the typography is clear and the illustrations have been faithfully and clearly reproduced. This monograph should be in the library of every gynecologist.

Nutritive Values of Wartime Foods (Tables Compiled for the Accessory Food Factors Committee). Medical Research Council War Memorandum No. 14. Paper. Price, 1s. Pp. 59. London: His Majesty's Stationery Office, 1945.

This pamphlet comprises a number of tables of foods grouped in the commonly used categories of cereals, meats, dairy products and so on. The nutritive values of the foods listed are given with respect to the three basic components as well as iron, calcium and vitamins A, B₁ and C. These are computed on an "edible portion" and "as purchased" basis. The figures given represent the first compilation of such figures on British foods for use in evaluating dietary data. The values represent data secured from governmental and private individuals. They have been gathered and appraised by the Committee on Accessory Food Factors.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PENICILLIN FOR SINUSITIS

To the Editor:—What is the status of penicillin in chronic sinusitis? What of its use locally?

J. Clark Cooper, M.D., Villisca, Iowa.

ANSWER.—The value of penicillin as a local therapeutic agent in chronic sinusitis has not yet been fully determined. In general two requirements should be fulfilled in order to anticipate a favorable effect: The infection must be due to bacteria against which penicillin is effective, which are mainly staphylococci, *Streptococcus hemolyticus*, pneumococci and the anaerobic streptococci; and the penicillin solution must be brought into contact with the infected areas for a long enough period to permit a favorable action. Factors which are likely to impede or prevent a satisfactory effect of penicillin are the presence of irreversible hypertrophic changes in the mucosa creating interference with the normal mechanism of drainage and the presence of such bacterial organisms as the gram negative bacillary types. Acute exacerbations of a chronic sinusitis have responded well to parenteral administration of penicillin. Chronic suppuration which has been localized chiefly to the maxillary antrum and anterior ethmoids has sometimes responded well following removal of the pus and instillation of penicillin solution. Empyema in which the predominant organisms were of the gram negative bacillary types have also sometimes responded well to such treatment.

The results so far reported indicate that penicillin will have a definite value as a local therapeutic agent.

COUGH ASSOCIATED WITH EATING

To the Editor:—A woman aged 19 developed a severe cough two months ago, which comes on during or immediately after eating. Physical examination is negative except that she is a stammerer. Films and competent fluoroscopy examination carefully repeated are negative. A good eye, ear, nose and throat specialist finds some small local throat condition which he ascribes to postnasal drip which might be causative; however, treatment of this condition has produced no results. The pulse rate is 70; blood pressure, urine, serologic reaction, heart, diaphragm, abdomen and history are normal.

Leland H. Anderson, M.D., Aurora, Ill.

ANSWER.—The question does not state definitely whether the x-ray examination included fluoroscopy of the esophagus. Patients with cardiospasm may complain primarily of a troublesome cough after eating. Assuming that this possibility has been excluded and with no evidence of an organic connection between the esophagus and the tracheobronchial pulmonary system, the possibility of a faulty mechanism of deglutition must be considered.

The usual mechanism for production of cough on swallowing is the entrance of food into the larynx. This is normally prevented by the contracture of the thyrohyoid muscle, which raises the trachea and brings its opening under the shelter of the epiglottis and the root of the tongue. The elevation of the larynx is the important safeguard. When the larynx is fixed by disease or its movement is hindered, swallowing is difficult or impossible. Coincidentally with the upper movement of the larynx the vocal cords are approximated. A short inspiration (inspiration of swallowing) occurs at the commencement of swallowing and is followed by complete inhibition of respiration, which persists to the end of the second stage of swallowing. The fact that the patient is a stammerer may be important. Stammering is a disturbance of muscular function and coordination probably emotional in origin and thus related to the psychoneuroses. Speech employs muscle groups concerned in the elemental processes of sucking, chewing, breathing, swallowing and vomiting. Possibly under certain conditions of emotional strain incoordination of the muscles of deglutition may occur sufficient to allow particles of food to enter the larynx and thus initiate the cough reflex. Therapy would entail a thorough examination by a competent otolaryngologist and a neuropsychiatrist. The possibility of chewing more solid foods in an effort to produce a pasty bolus less likely to spill into the trachea might be considered. Perhaps the effect of eating alone might be given a trial.

INELIGIBLE BLOOD DONORS

To the Editor:—The traveling Red Cross blood bank unit has been in this village on two occasions. Following each such collection the local chairman of the Red Cross has received a list of names of donors who should not be used again. What is there in the processing of plasma that should cause the processing plant to recommend against certain persons being accepted as donors?

Edmund J. Quirk, M.D., Chelsea, Mich.

ANSWER.—The list described is not compiled by the plasma processing laboratory. It represents the persons who, in the opinion of the physician in charge of the mobile unit, should not be blood donors on account of various physical conditions, such as heart disease, high blood pressure, anemia, gastric ulcers, underweight or history of malaria. The list, simply made up as names and without reasons or diagnoses, is sent to each local chapter so that the soliciting of ineligible persons as donors for future mobile unit visits can be avoided. The only persons whom the processing laboratory recommends not to take as future donors are those whose blood is serologically positive for syphilis, but the names of these persons are not included in the list to which reference is made.

DERMATITIS AND THE MENOPAUSE

To the Editor:—During the last three years I have encountered a few cases of an identical skin condition. The affected patients are physically healthy women of a rather nervous type in the midst of the menopause, and without important vasomotor symptoms. They present an erythematous papular dermatitis with a tendency to chronicity localized on and around the ear lobules and extending into the external auditory canal. Improperly handled, patches of dermatitis madidans or crustosa appear. Itching is a most annoying factor, especially in the auditory canal. From the ear it tends to spread retroauricularly toward the scalp and preauricularly to the cheeks and neck, with occasional papules over the sternum and the limbs. Local treatments used routinely have no effect. A high dose of estrogen given intramuscularly in an empirical dose twice weekly brought about complete clearing in three to four weeks. A mild cream was used locally. Itching subsided within two or three days after the first injection. The doses that I used were 50,000 international units of estrogen (I used Progyon B) as the initial dose, with doses of 10,000 units to follow.

Charles J. Mehlmann, M.D., New York.

ANSWER.—The dermatologic condition, according to the data in the query, suggests a contact dermatitis due possibly to some cosmetic preparation or some other external agent perhaps carried by fingers. It is difficult to decide whether these cases started simply as an eczema, so called, of the ears, or whether there was a monilia infection in the beginning, or whether there was a seborrheic factor in the scalp as a starting point.

It is impossible to explain why the high doses of estrogen should effect such a change. Some women about the time of the menopause will have conditions of various organs respond favorably to additional estrogen. It would be difficult to decide which of three factors was the more important: (1) the effect of the estrogen, (2) the effect of planned treatments with a hypodermic needle, in other words, the psychotherapeutic effect, or (3) the use of a mild soothing cream externally, perhaps as a contrast to the many different, often strong agents which are sometimes used to help such conditions.

TREATMENT OF FILARIASIS

To the Editor:—I should like references to the best opinions on the treatment of patients infected with the filaria organism.

Robert D. McCradie, M.D., Oakland, Calif.

ANSWER.—There are several types of filarial organisms, the most common of which is *Wuchereria bancrofti*. This organism is responsible for practically all of the infections in the service men. The treatment of these early infections is entirely symptomatic, but because of their mildness little or nothing is needed. The main symptoms are retrograde lymphangitis, tender lymph nodes and occasional lymph edema. All are transient. There are no chemotherapeutic agents of any proved value.

References:

- Coggeshall, L. T.: The Problems of Filariasis, *South. M. J.* 38: 186 (March) 1945.
- Haviland, J. W.: Recent Experiences with Filariasis, *Northwest Med.* 43: 371 (Dec.) 1944.
- Napier, E.: Filariasis Due to *Wuchereria Bancrofti*, *Medicine* 23: 149 (May) 1944.

WATERY CYSTS OF THE CONJUNCTIVA

To the Editor:—In the query on Watery Cysts of the Conjunctiva in The Journal, Aug. 25, 1945, page 1260, what Dr. Thompson describes conforms to the appearance of the condition called lymphectasia. Lymphectasia results from dilatation of the lymph channels of the conjunctiva. The cysts appear as small transparent beads. They cause little or no trouble. If treatment is required they may be opened or excised.

M. M. Cullom, M.D., Nashville, Tenn.

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SODIUM RESTRICTION IN THE DIET FOR HYPERTENSION

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In connection with studies of experimental hypertension the effects of various types of diet on the blood pressure have been studied, including alterations in the content of vitamins, proteins, minerals and certain other dietary constituents. In the course of these investigations it was noted that diets very low in sodium content appeared to exert a hypotensive effect which was abolished by the addition of sodium chloride. The association of a low sodium content of the diet with a hypotensive response was so striking that the studies were extended to a series of patients. The results thus far obtained would appear to indicate that in certain patients this form of therapy is decidedly beneficial. The experimental basis for this work is reported elsewhere,¹ the present paper being confined to our observations on human patients only.

OBSERVATIONS ON PATIENTS

Thus far 6 subjects have been investigated while rigidly controlled in the hospital. The blood pressure was taken twice daily, at least five readings being made each time, and the results averaged. For the sake of convenience the six readings taken during each three day period have been averaged and are recorded in the accompanying charts.

The diets used in the patients were made up of foods which are naturally low in sodium content. A typical menu for a week is shown in the table. In order to provide an adequate protein intake and at the same time achieve drastic sodium restriction, it was necessary to dialyze the milk consumed by the patients. In this way it was possible to administer a 2,000 calory diet daily which contained less than 1 Gm. of sodium chloride.

In 2 of the 6 patients the blood pressure declined to essentially normal levels and promptly rose again to the pretreatment values when 20 Gm. of sodium chloride was added daily to the diet which had previously

resulted in a reduction of their blood pressures (charts 1 and 2). Subsequent cessation of the use of this added sodium chloride again resulted in a decline in blood pressure, as had been noted previously.

A third patient (chart 3) displayed a moderate decline in blood pressure, but the values did not at any time approach the normal.

Another subject (chart 4) had no decline in blood pressure despite the use of the diet for several weeks.

The fifth patient had carcinoma of the liver in addition to hypertension. This person displayed practically no change in blood pressure until a collapse reaction developed, with prompt recovery following saline administration (chart 5). This subject was the only one in whom any harmful effects of rigid sodium restriction were observed. (None of the patients reported have been followed during hot weather, and it is possible that harmful effects may occur more frequently when sweating is excessive.)

The sixth patient was moribund from uremia when the diet was begun and died within three days. No conclusions can be drawn concerning the effects of the diet in this instance.

More detailed information concerning the patients is offered in the following case abstracts:

CASE 1.—E. M. B., a Negro woman aged 37, had unilateral exophthalmos and other typical manifestations of an aneurysm of the left internal carotid artery. She was known to have had hypertension for at least three years. For fifteen years she had considerable frequency and burning on urination, and these symptoms had been only partially relieved by removal of uterine myomas eleven years previously.

On admission to the hospital the systolic blood pressure was 235 mm. of mercury and the diastolic was 130 mm. The retinal arteries displayed no abnormalities. The heart was moderately enlarged. The catheterized urine showed a faint trace of albumin, a few leukocytes and a positive culture for *Escherichia coli*. The Wassermann reaction of the blood was positive. The highest specific gravity obtained with concentration tests (Fishberg technic) was 1.023. She excreted 70 per cent of the phenolsulfonphthalein injected within two hours.

The blood pressure record is shown in chart 1. During the control period the patient displayed a striking decline in blood pressure on rest alone. After the pressure had become stabilized at about 160/105 sodium restriction was begun and the pressure then declined to normal levels, the exophthalmos disappearing. The addition of 20 Gm. per day of sodium chloride resulted in a rapid rise in blood pressure, and at this time the unilateral exophthalmos returned. She was again put on the low sodium diet, with a decline in the blood pressure to normal values. At a later date she was allowed to begin work during the day, remaining in the hospital at night. This resulted in a slight increase in blood pressure, which was now at the upper limits of normal. When a diet consisting of the regular hospital diet without added salt was substituted for the specially selected low sodium diet there was a slight increase in the blood pressure, which rose further when 5 Gm. of sodium chloride was added

Aided by grants from Mr. Joe Werthan and Mr. Alfred Starr. From the Department of Experimental Medicine of the Southwestern Medical College and the Medical Service of the Parkland Hospital, Dallas, Texas.

1. Grollman, A., and Harrison, T. R.: The Effect of Drastic Sodium Restriction on the Blood Pressure and Survival in Experimental Hypertension, to be published.

to the diet. The institution of the original sodium poor diet caused the blood pressure to decline for the third time.

CASE 2.—M. L., an obese Negro woman aged 31, was known to have had hypertension for approximately six years. Her chief symptoms consisted of occasional headaches of a migrainous type. She had had suggestive manifestations of a low grade pyelitis on two occasions in the past. No significant changes were observed in the optic fundi. The heart was at the upper limits of normal in size. The maximum specific gravity of the urine was 1.034 (Fishberg technique). The catheterized urine contained 15 to 20 white blood cells per high power field and occasional red blood cells. Culture of the urine was negative. Phenolsulfonphthalein excretion was 70 per cent in two hours.

patient then displayed a slow rise in blood pressure up to the level which existed prior to the sodium restriction. Institution of sodium restriction was again followed by a decline in blood pressure to within the upper limits of the normal range.

CASE 3.—M. K., a white woman aged 41, had attacks of acute pyelitis at ages 18 and 28. Following the first attack she had intermittent symptoms of cystitis until about two years prior to admission to the hospital. She was first found to have hypertension in 1941, at which time her blood pressure was 250/130. She had remained asymptomatic most of the time but had one attack of weakness of the left arm lasting three days and had experienced two syncopal attacks, during which the blood pressure was higher than the usual level. She had

Typical Menus for the Week*

Monday	Breakfast	Gm.	Lunch	Gm.	Supper	Gm.
	Orange (juice).....	50	Meat patties.....	60	Chicken.....	50
	Grapefruit (juice).....	200	Macaroni.....	125	Ponches.....	50
	1 egg + 1 egg yolk.....		Tomatoes.....	75	Apples.....	100
	Onion.....	00	Lettuce.....	25	Apricots.....	200
	Diluted milk.....		Apple.....	100	Lemon juice.....	50
	Sugar.....	35	Grape juice.....	100	Sugar.....	25
	Coffee.....	as desired	Butter.....	10	Butter.....	10
Tuesday	Grape juice.....	200	Lamb.....	60	Beef patties.....	50
	1 egg + 1 egg yolk.....		Rice.....	125	Potatoes.....	125
	Parina.....	00	Tomatoes.....	75	Squash.....	100
	Diluted milk.....		Lettuce.....	25	Butter.....	10
	Sugar.....	35	Butter.....	10	Apples.....	100
	Coffee.....	as desired	Ponches.....	100	Lemon juice.....	50
			Orange (juice).....	200	Sugar.....	25
Wednesday	Grapefruit (juice).....	200	Butter.....	12	Lean steak.....	50
	1 egg + 1 yolk.....		Beef.....	00	Squash.....	100
	Rice.....	120	Eggplant.....	100	Grapefruit (juice).....	50
	Diluted milk.....		Macaroni.....	120	Apples.....	100
	Sugar.....	35	Apricots.....	100	Lemon juice.....	50
	Coffee.....	as desired	Grape juice.....	100	Sugar.....	25
			Sugar.....	20	Butter.....	10
Thursday	Orange (juice).....	100	Meat.....	65	Meat.....	50
	Ponches.....	200	Macaroni.....	120	Rice.....	120
	Onion.....	120	Tomatoes.....	100	Eggplant.....	100
	1 egg + 1 yolk.....		Grape juice.....	200	Squash.....	100
	Diluted milk.....		Sugar.....	12	Grapefruit juice.....	200
	Sugar.....	35	Butter.....	12	Sugar.....	25
					Butter.....	10
Friday	Apple juice.....	200	Fish.....	75	Meat.....	50
	1 egg + 1 yolk.....		Potatoes.....	100	Eggplant.....	100
	Diluted milk.....		Tomatoes.....	75	Rice.....	120
	Sugar.....	35	Lettuce.....	25	Butter.....	10
	Coffee.....	as desired	Grapefruit juice.....	200	Sugar.....	25
	Parina.....	120	Butter.....	12	Ponches.....	200
			Sugar.....	20		
Saturday	1 egg + 1 yolk.....	25	Meat.....	60	Meat.....	50
	Cereal (onion).....	120	Potatoes.....	100	Rice.....	120
	Diluted milk.....		String beans.....	100	Cabbage.....	100
	Grape juice.....	200	Cabbage.....	100	Tomatoes.....	75
			Sugar.....	25	Lettuce.....	25
			Butter.....	12	Butter.....	10
			Apples.....	100	Sugar.....	25
					Butter.....	10
					Grapefruit juice.....	200
Sunday	Parina.....	120	Lamb.....	60	Lean steak.....	50
	1 egg + 1 yolk.....		Potatoes.....	100	Rice.....	120
	Diluted milk.....		Eggplant.....	100	Tomatoes.....	75
	Sugar.....	35	Cabbage.....	100	Lettuce.....	25
	Orange (juice).....	200	Butter.....	12	Sour cherries.....	100
			Lemon juice.....	50	Squash.....	100
			Fresh grapes.....	100	Butter.....	10
					Grapefruit juice.....	200

* Included in the diet indicated, 1,400 cc. of diluted milk was administered daily.

The blood pressure is shown in chart 2. Following a well defined decline in pressure, with rest in the hospital, the pressure became stabilized at a level of approximately 160 to 170 mm. systolic and 110 diastolic. Drastic restriction of sodium in the diet resulted in a decline in pressure to a level of approximately 135 to 140/100. The administration of 20 Gm. daily of sodium chloride, all other factors being kept constant, caused a rise in blood pressure to the previous level and a subsequent decline when the sodium chloride was withdrawn. In an attempt to reduce the blood pressure from the slightly elevated level of 140/100 to strictly normal values, an even more drastic regimen of sodium restriction was instituted and ammonium chloride was administered for the purpose of increasing the excretion of base. A minimal but definite decline in blood pressure occurred, and at a later date the diet was replaced by the hospital diet without the addition of salt at the table. The

been under a great deal of emotional stress for a number of years. The chief findings on physical examination were as follows:

The retinal arteries showed considerable variation in caliber and had a silver wire appearance, but no papilledema, hemorrhage or exudate were noted. The blood pressure was 215/130, the heart slightly enlarged, and there was a presystolic gallop. The highest urinary concentration observed with the Fishberg technique was 1.022. Urine cultures were sterile. During the preliminary period of rest in the hospital the blood pressure was usually in the region of 200/120, with occasional elevations from this level during periods of emotional stress. On one occasion following receipt of a telegram containing disturbing news the pressure was found to be 260/155.

The blood pressure is shown in chart 3. Following the institution of drastic sodium restriction a slow decline in blood

pressure occurred, the values averaging about 160/100. Occasionally values as low as 150/90 were observed, which were decidedly lower than had been found at any time within the previous four years. Following several weeks in the hospital she was allowed to go home and to resume normal activity at a somewhat restricted level. This resulted in a slight increase in her blood pressure, which, however, did not return to a level as high as that observed at rest in the hospital prior to the institution of the sodium restriction.

CASE 4.—F. H., a white woman aged 43, had had convulsions during her first pregnancy twenty-five years previously and was told that she had an increase in blood pressure at that time. This subsided and she had no hypertension during her next two pregnancies. However, the hypertension recurred during her fourth pregnancy ten years before admission to the hospital. Two years later she began to have severe frontal headaches. For four years she had occasional attacks of precordial pressing pain radiating into the left arm and relieved by glyceryl trinitrate. Her father, two brothers and one son are known to have had hypertension. The patient was emotionally very unstable and showed a striking fluctuation of the blood pressure in relation to her emotional state. During the period of study she was

In addition, the patient had hypertension, which remained fairly stable during the control period at 180 to 190 systolic and 120 diastolic. There was no cardiac enlargement and the patient had no symptoms referable to his hypertension. There was 25 per cent retention of sulfobromophthalein at the end of thirty

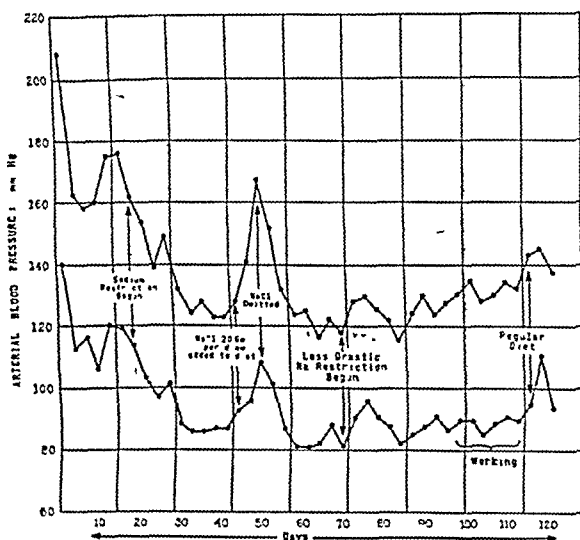


Chart 1 (case 1).—The initial decline occurring during the first three days was the result of rest in the hospital. The further decline occurred during rigid restriction of sodium in the diet. The addition of sodium chloride, the diet remaining unchanged, caused a prompt rise in the blood pressure, which again declined when salt was omitted. Liberalization of the diet and increase in activity caused increase in the blood pressure, which again declined when drastic sodium restriction was instituted.

under considerable emotional stress because of anxiety about her son, who was in active combat with the Marines.

Physical examination revealed moderate cardiac enlargement and considerable narrowing of the retinal arteries but without papilledema, hemorrhage or exudate. The maximal urinary specific gravity obtained with concentration tests was 1.017. However, she was able to excrete 80 per cent of the injected phenolsulfonphthalein. The urine contained a moderate amount of albumin and a few granular casts, but no erythrocytes or leukocytes were observed.

The patient was given a period of six weeks of drastic sodium restriction, but no significant change in the blood pressure occurred (chart 4). At the end of this time she was given 10 Gm of sodium chloride daily in addition to that in the regular hospital diet. However, this had to be discontinued within a few days because she began to have paroxysmal nocturnal dyspnea. In this case sodium restriction was a complete failure as far as the blood pressure was concerned.

CASE 5.—W. W., a Negro man aged 36, complained of pain in the right upper quadrant and was found to have a nodular, stone-hard liver. A diagnosis of carcinoma of the liver was made and the disorder was thought to be primary, since careful studies revealed no evidence of involvement of any other organs.

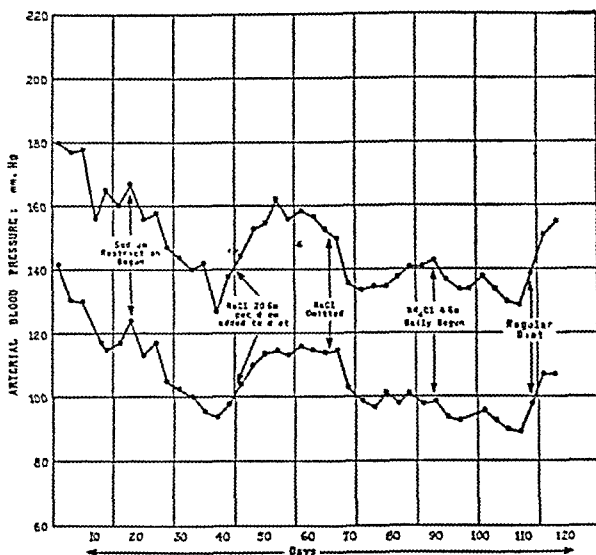


Chart 2 (case 2).—Rigid restriction of sodium, which was not begun until the pressure had become stabilized as the result of rest, caused a well defined decline in the blood pressure, which rose when sodium chloride was added to the otherwise unaltered diet. Omission of the salt led to a second decline in pressure. A slight further decline apparently occurred when ammonium chloride was administered. The pressure increased when the regular hospital diet was given and again declined when the original low sodium diet was employed.

minutes. The cephalin-cholesterol flocculation test was positive. The urine contained a few white blood cells and a moderate amount of albumin. The maximum specific gravity obtained by concentration procedures was 1.033 (Fishberg technic).

The blood pressure data are shown in chart 5. During the first several weeks of drastic sodium restriction there was only a minimal decline in the systolic pressure when the patient was on the low sodium diet, and practically no response in diastolic pressure. However, after about five weeks he developed a collapse reaction, severe cramping abdominal pain and a sharp decline in blood pressure. At this time his general condition was considerably worse than it had been before and he was given 2 liters of isotonic solution of sodium chloride daily because he could not take food or drugs orally. Following the administration of sodium chloride by infusion the blood pressure returned to the previous level. He died about two weeks later, but permission for autopsy could not be obtained. In this case, unlike cases 1, 2 and 3, in which the decline in

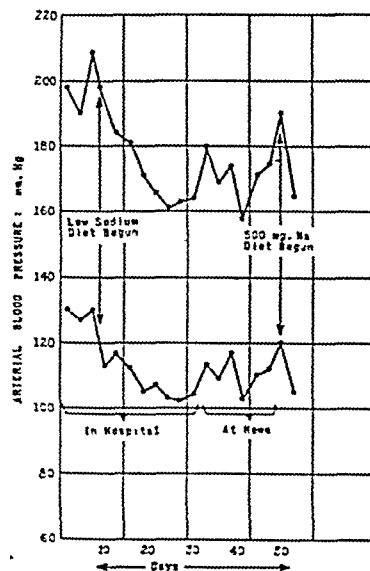


Chart 3 (case 3).—Rigid restriction of sodium was followed by a decline of approximately 35 to 20 mm in the systolic and diastolic pressure respectively. The increase in activity when the patient was allowed to leave the hospital was attended by a rise in the blood pressure, which, however, remained below the level during the control period of rest and regular diet.

blood pressure was associated with clinical improvement, reduction in pressure was associated with deterioration of the clinical state.

CASE 6.—G. M., a white man aged 63, was admitted to the hospital in a state of advanced uremia. He was almost moribund when the low sodium diet was begun. Because of his condition a stomach tube was passed and the diet administered through

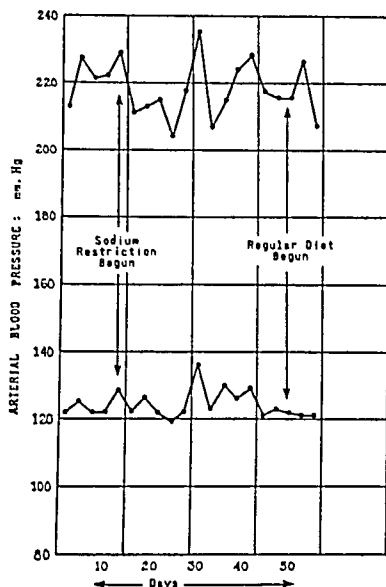


Chart 4 (case 4).—The low sodium diet was without significant effect on the blood pressure.

the tube. Within three days a sharp decline in blood pressure occurred, but the patient's clinical state continued to deteriorate and he died within seven days after the low sodium regimen was instituted. Because he was moribund when therapy was begun, no conclusion can be drawn from the drop in blood pressure which occurred, as such a decline might well have taken place spontaneously in a moribund patient.

COMMENT

The use of a "low salt" diet as a measure in the therapeutic management of patients with hypertension is not

new. It has been advocated particularly by Ambard² in France, Allen and Sherrill³ in this country and Volhard⁴ in Germany. These observers apparently believed that any beneficial effects observed were to be ascribed mainly to chloride restriction and apparently did not appreciate the peculiar significance of the sodium ion. However, the definitive value of drastic salt restriction has not been accepted generally, and this form of therapy has never been widely used. The present attitude toward salt restriction is perhaps best illustrated by the following statement from one of the world's leading students of hypertension:⁵

All in all, it does not seem demonstrated that the benefits obtained in essential hypertension by rigid salt restriction suffice to render its general use in the disease worth while. Equal results may be obtained by moderate restriction of sodium chloride. The patients should be instructed to avoid salty foods and not to add any considerable quantity of salt to the food. But there is no objection to the use of sufficient salt during the preparation of the food to render it palatable.

Moderate restriction of sodium usually fails to influence appreciably the blood pressure, and the employment of moderate rather than drastic restriction is probably the reason why this form of therapy has not been successful. Thus, the failure of McLester,⁶ of O'Hare and Walker⁷ and of Berger and Fineberg⁸

to obtain demonstrable results can probably be ascribed to the use of diets not sufficiently low in sodium content. Furthermore, the observations of Mosenthal⁹ in patients and of others in experimental animals¹⁰ that the addition of sodium chloride to the diet did not further elevate the blood pressure tended to discredit the earlier reports on the usefulness of salt restriction. Moreover, the lack of controlled observations on animals with experimental hypertension, such as are presented for the first time elsewhere,¹¹ militated against the acceptance of this form of therapy.

It is very probable that the incidental salt restriction is responsible for the results reported recently by Kempner¹¹ with the rice diet and also for the numerous responses reported to have occurred following restriction of the diet to certain fruits, vegetables, milk or periodic fasts. These results are essentially those obtainable by a more general diet equally low in sodium. In animals the addition of sufficient sodium chloride completely inhibits the hypotensive effects of a diet limited to rice, and equally striking effects are seen with potatoes, peanuts or soy beans.¹

From a practical point of view it may be necessary that salt restriction be extremely rigid if it is to be effective. This can best be accomplished by dialyzing such food as milk to remove the sodium chloride, selecting foods which are naturally low in their sodium content, and by the liberal use of flavoring agents such as pepper, lemon juice, garlic and vanilla, to overcome the insipid taste of salt free food. It is, moreover, necessary to observe the patients closely, particularly in hot weather, for symptoms of salt deprivation.

At the present time we have no method other than the therapeutic trial to determine which subjects will respond and which subjects will not respond to drastic sodium restriction. However, in some patients the declines in the blood pressure are striking, and in view of the relative ease with which this method can be applied it seems to offer, for certain patients, the most practical and effective therapeutic measure that is at present available.

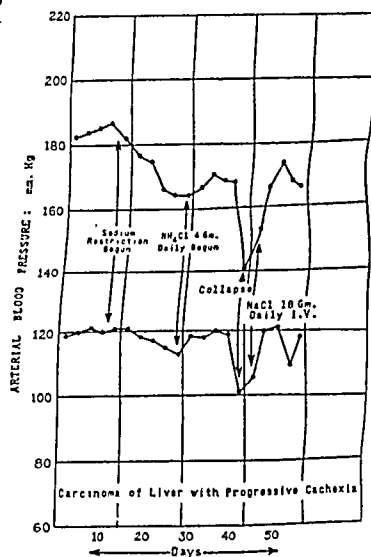


Chart 5 (case 5).—During the first three weeks of the low sodium diet only a minimal change in blood pressure occurred. The administration of ammonium chloride was apparently without effect. After five weeks on the restricted diet a sharp decline in blood pressure occurred and symptoms of collapse appeared. The administration of saline solution parenterally controlled the symptoms and restored the blood pressure to the previous level.

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SUMMARY

Diets rendered low in sodium content by dialysis were found to reduce decidedly the blood pressure of rats with experimental renal hypertension. That this effect was due to the low sodium content of such diets was demonstrated. It was also shown that prolonged administration of such "low sodium" diets not only was not deleterious but apparently actually prolonged the life of the experimental hypertensive animal.¹

In 6 human hypertensive patients a drastic reduction in the sodium intake, made possible by dialysis of the milk included in the diet, resulted in no decline in blood pressure in 1 subject, a reduction of the pressure to essentially normal levels in 2 and a moderate reduction in the remaining 3, 1 of whom, however, displayed acute circulatory collapse which responded promptly to sodium chloride therapy. It is suggested that such diets be utilized for a brief trial period for patients with hypertension and employed for a longer period in subjects who display a favorable response.

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THE RELATIONSHIP OF THE ADRENAL
CORTEX TO HYPERTENSIONOBSERVATIONS ON THE EFFECT OF HYPOADRENAL-
ISM ON A PATIENT WITH HYPERTENSIVE
VASCULAR DISEASE

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As a result of the work of Goldblatt and his associates,¹ emphasis has been placed in recent years on the role of the kidney in the pathogenesis of both experimental and essential hypertension. However, the absence of recognizable signs of impaired renal function or of significant anatomic change early in the course of hypertensive vascular disease has been advanced as an argument against renal ischemia as the primary cause of this disorder in man.²

There is considerable evidence that the adrenal cortex plays a part in the regulation of the arterial blood pressure. Hypertension may be a manifestation of certain adrenal cortical tumors, and hypotension is a frequent observation in Addison's disease even after restoration of electrolyte and water balance by appropriate therapy. Desoxycorticosterone acetate has been found capable of producing hypertension in some patients with hypoadrenalism and of raising the blood pressure in others without renal or endocrine disease.³ The administration of adrenocorticotrophic hormone has reestablished the blood pressure of hypertensive rats when depressed by hypophysectomy.⁴ And lastly, bilateral adrenalectomy interferes with the development and

maintenance of experimental renal hypertension unless cortical hormone replacement therapy is instituted.⁵

There are no reports of successful bilateral adrenalectomy in man, but the occasion has recently presented itself to follow the course of a patient with documented essential hypertension who subsequently developed hypoadrenalism. The purpose of this paper is to show the effect of adequate replacement therapy, first with desoxycorticosterone acetate⁶ and then with salt alone, on the blood pressure.

REPORT OF CASE

L. D., a white man aged 50, American born, a merchant, was first seen at the Presbyterian Hospital in 1939. There was no family history of hypertension or renal disease, and he knew of no exposure to tuberculosis. His past history, except for childhood diphtheria and uncomplicated scarlet fever at the age of 21, was noncontributory.

In 1936, three years before, he had reported to his local physician a transient episode of dyspnea and was told that his blood pressure was 160/110. During the next three years he was seen by several physicians, who found blood pressure levels consistently above 140/100. His only complaint was of moderate exertional dyspnea.

Three months before admission to the hospital, in July 1939, the patient developed progressive weakness and one episode of nausea and vomiting. Physical examination on admission revealed that the patient was well developed, was afebrile and had extensive brownish pigmentation, most pronounced over the face, neck, forearms and hands. No buccal pigmentation was noted. The blood pressure was 140/105. The retinal vessels exhibited moderate tortuosity and compression of the veins where crossed by arteries. The heart was enlarged to the left on percussion; the second aortic sound was louder than the second sound over the pulmonary area; no murmurs were heard. The remainder of the examination was within normal limits. Pertinent laboratory data included repeated normal urinalyses and a serum sodium determination of 134.1 milliequivalents per liter. The lungs were clear by x-ray, and the adrenal area showed no abnormal calcification. A 2 meter film of the heart revealed a cardiothoracic ratio of 12.9/22.9, and an electrocardiogram recorded left axis deviation and slight notching of the ventricular complexes. X-ray of the kidneys showed them to be normal in size, shape and position.

The diagnosis of Addison's disease was confirmed by salt withdrawal, with the development of increasing weakness, a drop in blood pressure to 88/66 and a serum sodium which fell to 129.8 milliequivalents per liter. The patient responded to treatment with desoxycorticosterone acetate with disappearance of all symptoms, a return of the serum sodium concentration to normal and the reappearance of hypertension.

For the next six years the patient was followed in the outpatient department at intervals rarely in excess of three months, as shown in the chart. Repeated blood pressure readings were taken in the sitting position at each visit by one of a small group of observers. Except for one hospital admission with an acute respiratory infection and fever of 104 F., during which his blood pressure fell to 110/70, he was maintained in water and electrolyte balance with 2 to 3 mg. of desoxycorticosterone and exhibited a persistent hypertension. Systolic pressures ranged from 134 to 180, diastolic values always above 90 mm. of mercury.

During this period he remained in reasonably good health but for occasional exertional dyspnea. He experienced no cardiac pain or edema, and examination of the fundi showed no pro-

From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

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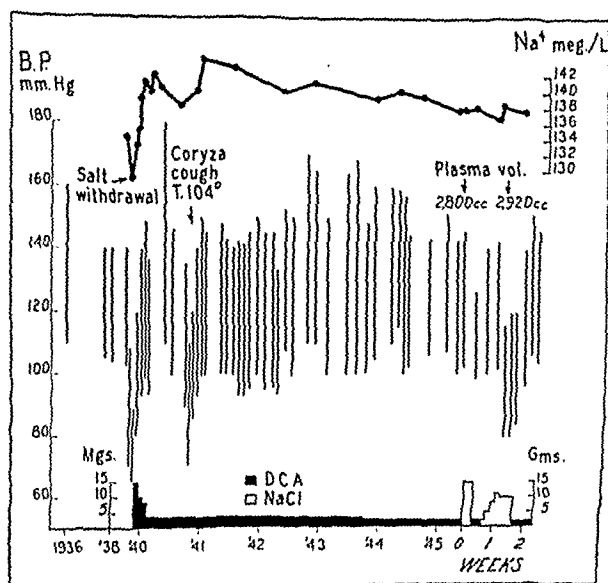
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6. Desoxycorticosterone acetate (Doca) was furnished through the generosity of Dr. L. A. Pike of Roche-Organon, Inc., Nutley, N. J.

gressive changes. Occasional slight albuminuria appeared after several years, and rare red cells were present in the urine during the last year of observation. Annual electrocardiograms continued to show left axis deviation and T_a became inverted. Frequent serum sodium determinations were made and were invariably normal or slightly above. These measurements were made either directly⁷ or at times—in the absence of nitrogen retention—indirectly by the summation of the carbon dioxide content and the chlorine concentration, both expressed as milliequivalents per liter, plus 10.⁸

After a preliminary serum sodium determination (137.8 milliequivalents per liter) and measurement of the plasma volume (2,840 cc. as compared to a predicted normal, based on weight, of 2,970 cc.) desoxycorticosterone was withdrawn and the patient maintained on daily oral doses of sodium chloride in excess of that in the diet. The plasma volume was determined after thirty minutes in the horizontal position with the blue dye T. 1824 and calculated from the optical density, measured with the photoelectric colorimeter, of a serum sample drawn ten minutes after injection of the dye.⁹



Effect of salt replacement on blood pressure in a hypertensive patient with Addison's disease.

After two days on 15 Gm. of enteric coated sodium chloride, mild cramps and diarrhea appeared, controlled by paregoric. He was again placed on his usual dose of 2 mg. of desoxycorticosterone for two days, then shifted to increasing doses of sodium chloride in drinking water and added to the diet for a period of one week. Throughout this time he remained ambulatory and made frequent visits to the clinic, where temperature, weight, blood pressure and other data were secured.

With no signs or symptoms of adrenal cortical insufficiency, fever, significant weight change and with no fall in serum sodium concentration below normal, the patient's blood pressure dropped to 116/80 after four days, at which time the plasma volume was again determined (2,920 cc. as compared to the original value of 2,840 cc.). At the completion of one week on sodium chloride, with blood pressures still within normal limits, desoxycorticosterone was resumed and hypertension reappeared within a few days. A subsequent electrocardiogram showed nothing to suggest that the drop in pressure had been due to a myocardial infarction.

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COMMENT

The repeated finding of hypertension in this patient by multiple observers, in the absence of demonstrable renal disease and with associated slight cardiac enlargement and left axis deviation by electrocardiogram, leaves little doubt that he had essential hypertension. The subsequent development of Addison's disease was established clinically as well as chemically by a pronounced decrease in serum sodium concentration as a result of the withdrawal of salt from the diet.

Throughout a period of observation of about six years, more than three years after hypertension was first recorded, this patient maintained an elevated blood pressure even after the appearance of hypoadrenalism treated with desoxycorticosterone. The sole exceptions occurred during the initial period of adrenal cortical insufficiency and during a febrile episode due to a respiratory infection, at which times the blood pressure fell to normal or below.

Evidence is presented that the maintenance of hypertension in this patient was apparently dependent on the administration of desoxycorticosterone. Thus, when he was given sodium chloride alone, but in sufficient quantity to maintain a normal serum sodium concentration and a normal plasma volume, the hypertensive state disappeared, only to return with the readministration of desoxycorticosterone.

One can only speculate as to whether a primary mechanism is involved or whether the adrenal cortex operates through a renal or some other mechanism. The fact that desoxycorticosterone has pressor potentialities raises the question whether the abnormal liberation of certain adrenal cortical hormones may be concerned in the etiology of hypertension even though consistent anatomic change is not apparent. The sequence of events in this patient suggests that the adrenal cortex may be essential for the development or maintenance of simple hypertension in man.

CONCLUSION

1. A patient with documented hypertension, who subsequently developed hypoadrenalism, showed a persistent elevation of blood pressure while under treatment with desoxycorticosterone.
2. Replacement therapy with salt alone, even though the patient was maintained in water and electrolyte balance, resulted in a drop in blood pressure to normal limits.
3. This suggests that the adrenal cortex may be important for the development or maintenance of essential hypertension in man.

620 West 168th Street.

Beginnings of Intra-Abdominal Uterine Surgery.—The earlier laparotomies undertaken for the removal of ovarian cysts not infrequently revealed the presence of large fibroid masses. In the majority of instances these masses were left undisturbed, though often they were punctured and dry taps resulted. Thus uterine surgery began as a result of diagnostic error. A. A. Boinet in an article read before the Paris Academy of Medicine (1870) cited fourteen instances of laparotomies undertaken for the removal of ovarian cysts, which proved, instead, to be large fibroid uteri, and his list is not all inclusive. Boinet assigned the first diagnostic error to John Lizars (1825). It is possible that Ephraim McDowell, the father of ovariectomy, was dealing with fibroid growths in the second and fourth cases of his series, and A. B. Granville's description of his second failure strongly suggests that he was dealing with a fibroid rather than an ovarian cyst (1826). In none of the cases cited by Boinet was the fibroid growth removed.—Ricci, James V.: *One Hundred Years of Gynecology*, Philadelphia, Blakiston Company, 1945.

PERTUSSIS IMMUNIZATION PROGRAM OF THE BOSTON HEALTH DEPARTMENT

THE COMPARATIVE VALUE OF TWO DIFFERENT ANTIGENS

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GENERAL PLAN OF THE IMMUNIZATION PROGRAM

In March 1942 the Boston Health Department instituted a pertussis immunization program in an effort to protect children against pertussis during the earlier months of their lives. All presumably susceptible infants between the ages of 6 and 12 months were eligible to receive prophylactic inoculations against pertussis at their local well baby clinic. The well baby clinics are located in the health units and substations situated in eighteen different geographic districts of the city and are accessible to all who wish to take advantage of their services.

Two different antigens, the Parke Davis Sauer vaccine and the Lederle Detoxified Pertussis Antigen, were used for immunization. The former is a killed bacterial suspension of phase I Hemophilus pertussis cultures grown on Bordet-Gengou medium containing at least 15 per cent of human (placental) blood made up to a concentration of 15 billion bacilli per cubic centimeter. The latter is a formalized sterile toxic filtrate made from the growth of selected toxic and antigenic cultures of H. pertussis in a buffered beef heart infusion containing 2 per cent peptone and 0.1 per cent soluble starch adjusted to p_H 7.8. The Boston Health Department purchased both antigens in the open market.

Approximately half of the babies were inoculated with the Sauer vaccine and the other half with the Lederle Antigen. The total dosage for each antigen was 6 cc. The intervals between the injections were three weeks, the standard dosage for the Lederle Antigen being 2 cc. for each injection, whereas Sauer's vaccine was administered in 1, 2 and 3 cc. amounts respectively. The injections were given by the health department physicians regularly in attendance at the well baby conferences and the records of the injections were diligently kept by the nursing staff. On completion of the immunization series a card giving the essential data of immunization for each child was forwarded to the Division of Child Hygiene, where it was filed as a permanent record of immunization.

GENERAL PLAN OF INVESTIGATION

At the end of the second year of the pertussis immunization program it was deemed advisable to evaluate the program and to compare the efficacy of the Lederle Antigen with that of Sauer's vaccine. Since such an evaluation could be made only through a field survey, the aid of the Nursing Division was enlisted in the collection of the data.

First, the immunization record cards for every child who had been immunized during the years 1942 and

1943 was forwarded to the medical inspector of his respective health unit, together with an adequate number of survey forms. (A sample form is shown in the accompanying questionnaire.)

SAMPLE QUESTIONNAIRE USED IN PERTUSSIS IMMUNIZATION STUDY

Name of child.....Age.....
Address.....Station.....
Type of antigen used.....Dates of inoculation: 1st.....
2d.....
3d.....

Was child exposed to whooping cough after immunization?.....
Place of exposure: In family.....
Other household.....
Indefinite.....

Brief explanation of exposure.....

Did child contract whooping cough since immunization?.....
Date of onset.....
Virulence of disease: Very mild.....
Mild.....
Moderate.....
Severe.....

If child had whooping cough, was there a physician in attendance?.....

Give number of children in same family in same general age group who have not been immunized: Number.....

Were any of these children exposed to whooping cough?.....Number.....

Did any of them develop whooping cough?.....Number.....

Signature of nurse.....

The medical inspector then instructed the clerk of each health unit to transfer the information from the record cards to the survey forms. After these data had been recorded, the survey forms were turned over to the supervising nurse in the health unit or substation. Miss Wedgewood, the director of nurses, instructed the supervisors to distribute these forms to the general nursing staff for completion. The nurses obtained the necessary information by questioning the parents, guardian or other responsible family members of the immunized children.

SIZE OF SAMPLE AND PERIOD OF OBSERVATION

Although approximately 5,000 infants were immunized during the years 1942 and 1943, only 3,006 of these children were visited between March 1 and April 21, 1944, the period of the field study. The total period of observation extended over two years, but only a small percentage of our group experienced a whole two years risk of 33,298 months, or an average of 11.1 months per child. In the Sauer injected group, 1,871 children had 19,458 months of experience, or an average of 10.4 months per child; the 1,135 Lederle injected children were at risk for 13,839 months, or an

TABLE 1.—Number of Children in Study Group and Length of Experience or Risk Following Immunization

Groups	Persons	Number of Children and Period of Observation		
		Person-Years at Risk	Months of Risk	
			Number	Average per Person
Both groups.....	3,006	2,775	33,298	11.1
Sauer.....	1,871	1,622	19,458	10.4
Lederle.....	1,135	1,153	13,840	12.7

average of 12.7 months per child. The average period of observation for the whole group was therefore 11.1 months per child. There were no children under observation for less than four months; about 8 per cent of the children were under observation for less than six months, while more than 70 per cent were under observation for twelve or more months. These facts are recorded in table 1. This table discloses that, although

the group injected with the Sauer vaccine is larger than the group injected with the Lederle Antigen, the children injected with the Lederle product have had a somewhat larger period of risk per person. We observed that more children were being immunized with Sauer's vaccine during the second year of our study, since it was the usual practice for one full time physician to use

TABLE 2.—Incidence of Pertussis in Sauer-Immunized and Lederle-Immunized Groups Based on Period at Risk

Groups	Number of Children	Person-Years	Number of Attack Cases	Annual Pertussis per 1,000
Both groups.....	3,006	2,775	40	14.4
Lederle-immunized.....	1,135	1,153	34	29.5
Sauer-immunized.....	1,871	1,622	6	3.7

Sauer's vaccine, whereas the pediatrician employed on a part time basis utilized the Lederle Antigen for immunization.

INCIDENCE OF PERTUSSIS IN BOTH GROUPS

The diagnosis of pertussis in this study was necessarily based on the clinical histories obtained and recorded by visiting nurses. We recognize, of course, the difficulties associated with diagnosis, especially when the illness is very mild. Nevertheless the possibility of overlooking cases in our study was small, since we were dealing with very young children who usually experience a typical course of illness. The ameliorative effect of immunization may, however, contribute toward the missing of some mild cases.

There were 6 cases of pertussis in the Sauer immunized group, representing a total of 1,622 person-years experience. The 34 cases in the Lederle-immunized group experienced a total of 1,153 person-years risk. In other words, there were 3.7 annual cases of pertussis per thousand in the Sauer-immunized group as compared with 29.5 annual cases of pertussis per thousand in the Lederle-immunized group. The difference of 25.8 is significant. The data relative to the incidence of pertussis are shown in table 2.

TABLE 3.—A Correlation of Exposures with Subsequent Attacks in Sauer-Immunized and Lederle-Immunized Children

Exposure	Sauer-Immunized Group			Lederle-Immunized Group			Both Groups		
	No. of Exposures	No. of Cases	Per Cent	No. of Exposures	No. of Cases	Per Cent	No. of Exposures	No. of Cases	Per Cent
Definite in own household	18	5	27.7	19	16	84.2	37	21	56.7
Definite in other household	39	0	0.0	30	13	43.3	69	13	18.8
Indefinite	8	1	12.5	10	5	50.0	18	6	33.1
Total	65	6	9.2	59	34	57.6	124	40	32.3

In order to rate the efficacy of the immunization, the nurses obtained histories of exposure sufficiently accurate to be acceptable as a basis for determining what percentage of the exposed immunized children were protected against the disease. Frequently the nurses were familiar with the circumstances of exposure as a result of their periodic house visits. This naturally aided in the accuracy of their reports. Also, since an explanation of the exposure was always given on the survey

forms, we were able to check the classification of the exposure as "definite" or "indefinite." The only exposures considered "definite" were those occurring indoors, in the child's own household or in another household where there was intimate contact with the patient during the infectious period. The "indefinite" exposures were those occurring under less intimate conditions as, for example, playing outdoors with a source patient. An analysis of the types of exposure, correlated with the subsequent attacks, is given in table 3.

SEVERITY OF ATTACKS OF PERTUSSIS

A percentage analysis of the 40 attacks of pertussis, classified in the various severity ratings, is given in table 4. It may be noted that most of the attacks were mild, the moderate and severe cases being in the minority. Thus, in the total immunized group, 65.6 per cent of the attacks were either very mild or mild, 17.1 per cent were moderate and 17.1 per cent were severe. Since there were so few cases in the Sauer-immunized group, the cases in the Lederle-immunized group influenced these figures to a large extent. Apparently, even though the Lederle-immunized children were

TABLE 4.—Severity of Pertussis Attacks in the Sauer-Immunized and Lederle-Immunized Groups

Severity Rating	Number and per Cent of Attacks					
	Sauer-Immunized		Lederle-Immunized		Both Groups	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total attacks.....	6		34		40	
Rated attacks.....	6	100.0	29	100.0	35	100.0
Very mild.....	1	16.7	9	31.0	10	28.6
Mild.....	5	83.3	20	69.0	25	71.4
Moderate.....	0	0.0	6	20.7	6	17.1
Severe.....	1	16.7	4	13.5	5	14.3
Not rated.....	0		5		5	

not very well protected against the invasion of the pertussis organism, the effects of the disease were ameliorated in a majority of the cases.

INTERPRETATION OF RESULTS

Since the two immunized groups were comparable in age, size, average period of risk per child, economic status, health and geographic distribution, any conclusions based on a comparison of the results obtained in our investigation may be considered valid. It is therefore significant to note that the Sauer-immunized group had an exceedingly low attack rate as compared with the Lederle-immunized group. Obviously the "toxoid" affords less protection than the bacterial vaccine against the attack of pertussis, even though it has been shown that the majority of cases in the Lederle-immunized children were of a mild nature. The Sauer vaccine affords excellent protection for at least one to two years, the period of observation in our study.

COMPARISON OF IMMUNIZED GROUP WITH NONIMMUNIZED CONTROL GROUP

In order to obtain a control for the immunized group of children, the nurses participating in our survey listed the siblings of the children in our study who had never been immunized against pertussis. Those siblings who were in the same general age group as the immunized children were selected for the control group. The age range allowed was from six months to six years. Infor-

mation relative to exposure to pertussis and the subsequent development of the disease was recorded on the survey forms. We recognize that it was impossible to select a control group equally comparable in age and geographic distribution to the study children but, nevertheless, we did obtain a reasonably suitable group.

In general, the control group selected was smaller and was largely composed of somewhat older children.

TABLE 5.—Incidence of Pertussis in the Immunized and Control Groups Based on the Period at Risk

Groups	Number of Children	Person-Years	Number of Cases	Annual Pertussis Attack Rate per 1,000
Immunized.....	3,006	2,775	40	14.4
Sauer.....	1,871	1,622	6	3.7
Lederle.....	1,135	1,153	34	29.5
Control.....	905	3,620	298	82.3
Both groups.....	3,911	6,395	338	52.8

However, comparing the experiences of the control group with the immunized group on a person-year basis we obtained statistically significant data. A total of 905 children with an average age of 4 years and 7 months made up our control group. Since the average age at immunization of the injected children was 7.6 months, we may consider the average period of risk per child in the control group as four years. The total person-years experience was therefore 3,620, as compared with 2,775 person-year experience in the entire immunized group. We must take into consideration, however, the fact that the pertussis incidence between 1½ and 4 years of age is approximately three times the normal incidence during the first year and one-half of life. We would normally expect, therefore, that the pertussis incidence or attack rate in the control group would be about three times that in the study group.

A comparison of the annual attack rate per thousand in the study and the control groups is shown in table 5.

We may note in table 6 that the incidence in the immunized group was about one-sixth that of the control, or approximately half of the expected incidence

TABLE 6.—Correlation of Exposures with Subsequent Attacks in the Immunized and Control Groups

Groups	Number of Children	Number Exposed	Per Cent of Children Exposed	Number of Cases	Per Cent of Exposed Children Attacked
Immunized.....	3,006	124	4.1	40	32.3
Sauer.....	1,871	65	3.5	6	9.2
Lederle.....	1,135	39	3.2	34	87.2
Control.....	905	481	53.2	298	62.2
Both groups.....	3,911	481	12.4	338	70.3

in a similar nonimmunized group of the same age range. However, further observation reveals that the decrease in incidence was contributed largely by the Sauer-immunized group, since the Lederle-immunized group showed an attack rate that would be expected in a nonprotected group of this age. This, therefore, is additional evidence that a bacterial vaccine is more effective than pertussis "toxoid" for prophylaxis against pertussis.

PERTUSSIS INCIDENCE IN THE IMMUNIZED AND CONTROL GROUPS CORRELATED WITH EXPOSURE

It is possible also to compare the immunized and control groups on the basis of the number of attacks occurring subsequent to exposure to pertussis. However, we must take into account the fact that the average risk per child in the control group is greater than that in the immunized group, since some children in the former group may have experienced uneventful exposures prior to the one which resulted in the attack recorded in our study. We have tabulated the data relevant to exposure for the immunized and control groups in table 6.

The tabulation shows that a greater percentage of the control children were exposed, as could be expected. The percentage of exposed control children attacked was not significantly greater than that of the exposed Lederle-immunized children when we take into account the period of risk per child in these groups. There was a sharp contrast, however, in the percentage of exposed Sauer-immunized children attacks as compared with the exposed control group. Consequently it was the Sauer-immunized children who contributed to the reduction in the proportion of the exposed immunized group attacked with pertussis.

SUMMARY

A study of 3,006 children immunized at the Well Baby Clinics of the Boston Health Department during 1942 and 1943 was made. Of these children 1,871 had been inoculated with Sauer's bacterial vaccine and were at risk for 19,458 months, or an average of 10.4 months per child; the other 1,135 children had been inoculated with the Lederle Detoxified Pertussis Antigen and had experienced 13,839 months of risk, or an average of 12.7 months per child. The average age at immunization was approximately 7 months. Susceptible non-immunized siblings of the inoculated children were selected for a control group. The control group consisted of 905 children with a total of 3,620 person-years experience, or an average period of risk of four years per child.

In the Sauer-immunized group there were 65 exposures resulting in 6 attacks of pertussis, in the Lederle-immunized group there were 59 exposures resulting in 34 attacks of pertussis and in the control group there were 360 exposures resulting in 298 attacks of pertussis. In other words, 9.2 per cent of exposed Sauer-immunized children contracted pertussis; 67.6 per cent of exposed Lederle-immunized children contracted pertussis, and 82.3 per cent of exposed, nonimmunized susceptible control children came down with pertussis. Apparently the Sauer vaccine affords excellent protection for at least one to two years, the period of observation in our study.

The severity of the pertussis attacks was rated as very mild, mild, moderate or severe. The number of attacks in the Sauer-immunized group was too small to rate for severity. Of the 34 cases occurring in the Lederle-immunized children 31.0 per cent were very mild, 34.8 per cent were mild, 20.7 per cent were moderate and 13.5 per cent were severe. It appears therefore that even though immunization with the "Detoxified Pertussis Antigen" is less effective as a prophylactic agent than a bacterial vaccine, it serves to modify the clinical course of the disease in a majority of cases.

SPONTANEOUS ABORTION

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Pregnancy may end in one of several ways: (1) death of the mother before delivery, (2) resorption of the fetus, (3) abortion, (4) premature delivery and (5) labor at term. In rare cases of missed abortion or abdominal pregnancy it may continue indefinitely, and sometimes even when the child is within the uterus it may last unduly long.

Resorption of the fetus occurs frequently in laboratory animals when deprived of either vitamin A or vitamin E. There may be other causes. No doubt it happens also in human beings and probably more frequently than we think. The following case, which came under our observation recently, is typical:

The patient, who was in the Women's Marine Corps, was 27 years old. Her family and past history were negative. She began menstruating at 12 years. The menses occurred every thirty days and lasted seven days. There was slight dysmenorrhea, no leukorrhea. She was married on Nov. 17, 1944. Her menses in December (16-22) were normal in every way. When she failed to menstruate in January she consulted the gynecologist at the Naval Dispensary Annex in Washington, who, after an examination, thought that she was pregnant. A Friedman test confirmed his suspicions, and accordingly she was discharged from the service. She consulted us on May 11, 1945. She had menstruated in February, March and April. She had an excellent appetite and was feeling fine. Examination was entirely negative; her weight was 121 pounds (55 Kg.), height 5 feet 2 inches (157 cm.), blood pressure 114/60. The vaginal mucosa was pink, and the uterus was small, firm and anteverted. The patient was astounded when told that she was no longer pregnant and insisted on a second Friedman test. This time the test was negative.

However, it is the group who give more obvious signs of the early termination of pregnancy that we wish to discuss at this time. For several years it has seemed to us that we were having more abortions than our share. Almost always we have a patient in the hospital who is threatening to abort. We realize that patients are consulting obstetricians earlier in pregnancy than ever before. Eight or ten years ago many patients who aborted early did not even consult a doctor. Now they are more interested in reproduction, and many come for preconceptional and even premarital examinations. Probably the seeming increase in the rate of abortions is not real, but the problem is a real one, especially for the previously sterile patient.

The abortion rate is difficult to determine. Taussig¹ estimated that from 600,000 to 700,000 abortions occurred each year in the United States. He arrived at this figure by calculating 1 abortion for every 2.5 confinements in urban areas, and 1 for every 5 confinements in rural areas. It is thought that his ratio is too high and that 1 abortion to every 6 confinements is more nearly correct. Wiehl and Berry² found a fairly constant proportion of abortions and stillbirths in the various hospital and clinic studies, i. e. 2.6 per cent stillbirths and 12.1 per cent abortions (spontaneous and induced). Whelpton³ in a study of the reproduc-

tive habits of white Protestant couples in Indianapolis who had been married eleven to fifteen years and who had completed the eighth grade at school, found that unintentional abortion increased fairly steadily from 6.2 per cent among women with one pregnancy to 18.8 or 21 per cent among those pregnant seven times or more.

Anatomists and embryologists, on the other hand, find a surprisingly high percentage of defective ova in early conceptuses. Rock and Hertig,⁴ for instance, in 17 human embryos obtained before the mother had time to miss a period noted that 5 were so defective that they could not have developed. In other words, 42 per cent of embryos were defective at the very beginning. If this holds good for a larger series, the foregoing estimates of the frequency of abortions are too low.

In an effort to gain some idea as to the frequency of spontaneous abortion and also to see if the group that aborted had any clinical characteristics, we have selected for study the histories of the last 1,000 pregnancies whose termination has been under our care. We recognize that there is some objection to this manner of selection, for some of the pregnancies, chiefly consultation cases, came under our observation only at the end of their pregnancy. It is quite obvious that, had the entire series been made up of such cases, the incidence of abortion would have been nil. On the other hand, some (17 to be exact) of the abortion cases were also consultation cases, which counterbalances in a measure the unfavorable selection caused by consultations late in pregnancy. An ideal group of cases for such a study as this would be composed of those which had been under observation from the premarital examination until they had passed their childbearing period. We know of no such study, and we certainly have no such series. We have checked the histories of 250 married patients who have passed the menopause. These 250 women had 596 children and 182 abortions. This is an average of 2.38 children and 0.73 abortion per mother. There was 1 abortion in every 4.28 pregnancies.

The first of the thousand consecutive cases came under our care in June 1943, and the last delivery was on May 8, 1945. There were 107 abortions. One patient died undelivered of a gas bacillus infection. A criminal abortion had been attempted on her and she rightfully belongs in the abortion group. This, by the way, was the only maternal death in the series. There was 1 other criminal abortion in the group. The patient also had a gas bacillus infection but recovered. Twelve were therapeutic abortions and 94 were spontaneous abortions. Five therapeutic abortions were done for hypertension. Four of the 5 had a history of toxic pregnancies. Two were done for hepatitis. In both, gallbladder operations had been done. Both patients were jaundiced, and both were extremely nauseated. One still had a biliary fistula. Both improved greatly after the abortion. One abortion was done on account of tuberculosis, and 1 for heart disease. One was a mental case and 1 had otosclerosis. One had diabetes and was not doing well.

The number of previous children and abortions are shown in the tables. It is evident that as the parity increased there was an increase in the percentage of abortions. This tendency is more obvious in the table for abortions. We have always entertained the idea that there was a group of patients with immature generative organs who were apt to abort with their first

1. Taussig, F. J.: *Abortion, Spontaneous and Induced*, St. Louis, C. V. Mosby Company, 1936.
2. Wiehl, D. C., and Berry, Kingsley, cited by Dunn, H. L.: *The Abortion Problem*, Baltimore, Williams & Wilkins Company, p. 10.
3. Whelpton, P. K., cited by Dunn, p. 15.

4. Rock, John, cited by Dunn, p. 66

pregnancy. After that they would go through with their subsequent pregnancies without any trouble. Four hundred and eighty patients in this series were pregnant for the first time, and of these 49 aborted spontaneously. However, as only 10.2 per cent of the primigravidas aborted spontaneously as compared with 9.4 per cent of the whole series, this group does not seem to be important numerically.

TABLE 1.—Number of Previous Children

Previous Children	Term		Total Abortions		Spontaneous Abortions	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total.....	503		108		95	
0	503	56.3	42	38.8	37	39.3
1	239	27.7	31	28.7	27	28.7
2	86	9.6	22	20.4	20	21.2
3	35	3.9	8	7.5	6	6.2
4	14	1.5	2	1.8	2	2.1
5	7	0.7	1	0.9	1	1.1
6	3	0.3	1	0.9	0	0
7	3	0.3	..	...	0	0
8	2	0.2	..	...	0	0
9 or more	1	0.1	..	...	..	...
Not stated	..	..	..	0.9	1	1.1

In addition to the 108 abortions there were 66 threatened abortions in which some vaginal bleeding was present with or without cramps sometime during the pregnancy. In the great majority this occurred in the first trimester. The ones who were admitted to the hospital were treated by bed rest and progesterone intramuscularly. The ones who remained at home were treated with bed rest and progesterone orally. In addition, there were 2 patients with early rupture of membranes. They had a few abdominal cramps but no bleeding.

The first was a 24 year old primigravida who was due by Naegle's rule on June 17, 1945. On January 24 the waters broke and she was admitted to the hospital. The pH of the fluid that was coming from her cervix was 7.5. On February 6 she was discharged from the hospital with instructions to remain in bed. She was readmitted to the hospital April 7 in labor and delivered a 3 pound 15 ounce (1,786 Gm.) girl. The mother was discharged on April 14 and the baby several weeks later, when it weighed 5 pounds (2,268 Gm.).

TABLE 2.—Number of Previous Abortions

	Term		Total Abortions		Spontaneous Abortions	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total.....	597		103		95	
0	744	57.3	61	59.2	56	59.5
1	115	12.8	50	27.7	25	26.0
2	23	2.5	7	6.5	7	7.5
3	7	0.8	3	2.7	2	2.1
4	2	0.2	1	0.9	1	1.0
5	1	0.1	1	0.9	1	1.0
6	0	0	1	0.9	1	1.0
Unstated	0	0	1	0.9	1	1.0

The second patient, a 34 year old secundigravida, was due on May 26, 1944. Her membranes ruptured on January 21, following a sudden death in her family. She was treated in the hospital for ten days and then in her home and was delivered of a full term girl on May 27, 1944.

If we add these 68 to the 94 who aborted spontaneously, we have a total of 162. This gives us a therapeutic achievement in treating threatening abortion of only 43 per cent.

Uterine bleeding in early pregnancy may be due to a partial separation of the placenta or the death of the

fetus. In the latter event we are a week or ten days too late with our treatment when the bleeding begins. When we are dealing with habitual aborters, treatment should be started as early in pregnancy as possible. Quigley⁵ had excellent results in 30 cases of habitual abortion. He emphasized the importance of beginning treatment early. In this connection one should bear in mind that there is always the possibility of carrying to a viable age a deformed baby who otherwise would have perished early in pregnancy.

The average age of the aborters was 31.8 years, the extremes being 18 and 43 years. The average age of those who did not abort was 27.07, the extremes being 13 and 44 years. Marital status was unimportant. There were 64 unmarried persons in the series and, except for the 2 who had a criminal abortion performed, all went to term. Likewise, syphilis was not an etiologic factor. Two women had positive serologic reactions for syphilis. One was treated and had a premature live baby. The other was not treated, and she gave birth to a premature macerated fetus. One husband was known to have syphilis. The wife's blood was negative. Nevertheless, she was treated and she had a full term live baby.

The smoking habits of 645 patients were noted. In the full term group there were 207 who smoked and 382 who did not smoke. The 207 smoked 2,042 cigarettes a day, or an average of 9.8. Thirty-eight of 56 aborters smoked, and these smoked 419 cigarettes a day, or an average of 10.

Ninety-four of the thousand weighed more than the maximum figure of insurance weight table for their age and height. Of these, 2 were in the therapeutic abortion group and 11 were in the spontaneous abortion group. Eighty-one overweight patients went to term. Had the same proportion of obese patients obtained in all groups, there should have been 110 in the full term group. The only patient in the entire series who suffered from underweight was 1 of the 2 with hepatitis who were aborted. Eight spontaneous aborters had hypothyroidism, as shown by a low basal rate, as compared with 6 who went to full term. Unfortunately a metabolism test was not done routinely. Had a routine basal metabolic determination been done, no doubt there would have been more subclinical hypothyroidism found in both groups.

Grip or infectious upper respiratory disease was noted in 2 aborters and in 21 of those who went to term, which is an even distribution. On the other hand, 2 diabetic patients were in the spontaneous aborter group as compared with only 6 in the full term group.

From time immemorial falls have been given a prominent place among the causes of abortion. Nineteen of the patients who went to term gave a history of having fallen at some time in their pregnancy. Three of those who aborted spontaneously gave a similar history. One did not begin to bleed until twenty-one days after her fall. The second began to bleed five days after falling down the steps and aborted two days later. The third patient, who also had pelvic inflammatory disease, began to have a bloody vaginal discharge a few hours after her fall. She aborted three weeks later. Whether the fall or the pelvic inflammation was the actual cause we have no way of determining.

Of more significance, it would seem, is the history of a previous sterile period. Nine patients with such a history aborted spontaneously and 21 went to term.

5. Quigley, J. K.: *Am. J. Obst. & Gynec.* 49: 633, 1945.

Further evidence of defective germ plasm is seen in the number of deformities of the infants. One baby had clubbed feet and 1 polydactylism. Two had cleft palate. One baby had atresia of the small intestine which was confirmed at autopsy. There was 1 iniencephalus and 1 microcephalus. Two babies had spina bifida and 1 had hydrocephalus. An additional one had a combination of spina bifida and hydrocephalus. It is significant that the microcephalic and 2 of the spina bifida infants were born to mothers who threatened to abort.

Among the gynecologic conditions associated with these 1,000 pregnancies there were 23 cases of vaginitis severe enough to warrant treatment. One of these women aborted spontaneously and 22 went to term. Of more significance is pelvic inflammatory disease. There were only 3 such cases. One aborted spontaneously, and one three weeks after a fall. One went to term. Four uterine myomas were noted, and 3 of these patients went to term. The fourth had a spontaneous abortion.

Retroversion of the uterus is probably an important etiologic factor. We do not have enough antepartum examinations or examinations early in pregnancy to determine this factor with any degree of accuracy. Seven hundred and sixty-one patients had postpartum examinations. Of these 684 went to term and 77 aborted spontaneously. Of the 684 patients who were delivered at term 183, or 26.9 per cent, had a retroversion. Of the 77 patients who aborted 34, or 44.1 per cent, had a retroverted uterus.

SUMMARY

Ninety-four spontaneous abortions and 68 threatened abortions occurring in 1,000 consecutive pregnancies were studied. Treatment with bed rest and progesterone was followed by recovery in 43 per cent. However, 3 patients who were treated successfully had deformed babies (1 microcephalus and 2 spina bifidas). Falls and intercurrent infections were of no etiologic consequences in this series. Pelvic inflammatory disease was encountered only 3 times, but 2 of these patients aborted. One of the 4 patients with uterine fibroids aborted. Two of 8 diabetic patients aborted spontaneously. Overweight patients and those with low basal metabolic rates seem to be rather prone to abort. The same is true of patients who give the history of sterility. Forty-four and one-tenth per cent of the patients who aborted had retrodisplacement of the uterus on postpartum examination as compared with 26.9 per cent of those who had term deliveries.

Medical Arts Building, Richmond 19.

Reaction of Host to Virus.—The internal situation in an animal invaded by a virus which it has not previously encountered is probably more complex than is usually thought. Very little is known as to what determines cellular susceptibility to effective invasion by a virus. One can broadly regard viruses as restricted to one or other system of tissues in the body, as being epitheliotropic, pneumotropic, neurotropic, and so on. Actually these limitations are rarely absolute and can nearly always be overstepped by strains of abnormally high virulence in either natural or experimental hosts. Within a given system of tissues there are usually certain types of cell which are more susceptible than others. In the central nervous system, poliomyelitis virus selectively attacks cells of the motor system. Influenza virus in monkeys, and probably in man, attacks the bronchiolar epithelium more severely than any other part of the respiratory lining.—Burnet, Frank MacFarlane: *Virus as Organism*, Cambridge, Mass., Harvard University Press, 1945.

LEISHMANIASIS

THE CULTIVATION OF LEISHMANIA TROPICA FROM TWO AMERICAN SOLDIERS WHO HAD RETURNED TO THE UNITED STATES FROM THE NEAR EAST

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Cutaneous leishmaniasis, popularly known as oriental sore, oriental boil, Delhi boil, bouton d'orient, Aleppo boil, Bagdad boil, Bagdad sore, salek, espundia, uta and chicher ulcer, is endemic in China, India, the Near East, the countries bordering the Mediterranean Sea and South America, but not a single case of endogenous leishmaniasis has been reported as yet from the United States and Canada. However, up to the present time a total of 28 exogenous cases have been reported in these regions (Dwork,¹ Strong,² Wenyon,³ Wright⁴). The 2 additional cases of cutaneous leishmaniasis contracted by returning American soldiers which are reported in his paper might presumably be the forerunners of a more serious influx as a consequence of returning military personnel and increased traffic from the regions mentioned.

The diagnosis of cutaneous leishmaniasis usually is based on the clinical appearance of the sore and on the demonstration of Leishman-Donovan bodies in the stained preparations made from scrapings of the ulcer. This procedure is not conclusive because occasionally yeastlike organisms or other extraneous substances from the lesion may be confused with Leishman-Donovan bodies, particularly if the smears are not well stained. Wenyon⁵ and I believe that undoubtedly it was the presence of yeastlike organisms in Benedek's preparations which resulted in Benedek's⁶ erroneous report of an autochthonous case of leishmaniasis in the United States in 1941. Such errors can be avoided if the diagnosis of leishmaniasis always is substantiated by cultural tests, in which the flagellated form of the parasites is unmistakably recognizable. Actually an absolute diagnosis of cutaneous leishmaniasis cannot be made unless it is verified by the demonstration of both the aflagellar and the flagellar stages of the parasites.

Although 28 cases of exogenous cutaneous leishmaniasis have been reported in the United States and Canada since the first report in 1903, the present communication is the first from the United States and Canada in which the diagnosis has been established by the cultural method (Dwork,¹ Hoare,⁷ Wright⁴).

METHODS AND MATERIALS

Case Reports.—The first patient was a white soldier who had been stationed in Iran from December 1943 until June 1944 and was admitted to an army general hospital in Texas on Feb. 8, 1945. He states

"I was in the Bacteriology and the Laboratory of Microbiology School of Medicine, Milton Pollard, Capt E R Cockerell, Lieut Houston, Texas, and my associate Dr Joy B Cross showed interest and cooperation in this work."

1. Dwork, K. G.: Cutaneous Leishmaniasis (Oriental Sore) in the United States and Canada. *Survey of Literature and Report of Four Cases*, Arch Dermat & Syph 45: 676 (April) 1942.

2. Strong, R. P.: *Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases*, Philadelphia, Blakiston Company, 1942.

3. Wenyon, C. M.: *Protozoology*, New York, William Wood & Company, 1926.

4. Wright, J. H.: Protozoa in a Case of Tropical Ulcer (Delhi Sore), J. M. Research 10: 472, 1903.

5. Wenyon, C. M.: Comments on Benedek's Report, Trop Dis. Bull 37: 778, 1940.

6. Benedek, T.: American Leishmaniasis: Report of the First Autochthonous Case in the United States, J. Trop. Med & Hyg. 43: 147, 1941.

7. Hoare, C. A.: Early Discoveries Regarding the Parasite of Oriental Sore, Tr Roy Soc Trop Med. & Hyg 32: 67, 1938.

that about six months earlier a small red "pimple" had appeared below the right "collar bone" and was soon encircled by several similar papules. At the time the material for the culture was secured, the eruption was composed of soft, discrete and confluent, reddish brown papules, one of which presented a small pinhead-sized ulcer. The entire lesion was surrounded by a nonsuppurative, hard, inflamed, raised, marginal zone.

The second patient, a Negro soldier, was admitted to the same hospital in February 1945. He had been returned on rotation to this country a month earlier, after about three years of service in Iran. Two scaling "lumps" had been noticed on the right leg about five months preceding his admittance. Approximately two months before he was hospitalized, the lesions had ulcerated. At the time the material for the culture was obtained, the lesions measured about 8 cm. in diameter. They were ulcerated and had raised, nonindurated, non-undermined borders and rather soft bases. The floors were covered with granulation tissue and with foul smelling purulent material and crusts.

Culture Medium.—Sterile meat infusion agar (containing 1.5 to 2 per cent agar-agar) was cooled to 45 C. and about 20 per cent of defibrinated rabbit's blood was added, mixed well, poured into test tubes and allowed to solidify in a slanted position. In order to obtain a large amount of water of condensation (about 0.5 cc. per tube) the freshly prepared tubes of medium were first refrigerated for several hours and then warmed at room temperature. After incubation overnight to assure their sterility, the tubes of medium were stored in the ice box until ready for use. This simplified medium has been referred to as N. N. medium, although it is not identical with either the classic formula of N. N., which contains 50 to 66 per cent blood, or the N. N. N. medium, which contains no meat infusion but has about 33 per cent blood (Craig,⁸ Nicolle,⁹ Novy and MacNeal,¹⁰ Strong²).

Cultural Test and Method of Securing the Inoculum.—In order to avoid contamination of the cultures with bacteria and molds, the lesions were painted with tincture of iodine, and after removal of the excess of iodine with alcohol, from 1 to 2 cc. of sterile isotonic solution of sodium chloride was injected into the bordering inflamed zone closely adjacent to the ulcerous center of the lesion. (It is desirable to use a new sterile needle and syringe for each injection and to introduce the solution into different areas of the bordering inflamed margin.) Immediately thereafter a few drops of fluid were obtained by aspiration and each sample of the aspirated fluid was inoculated into separate tubes of the N. N. medium. The inoculated tubes were rubber capped and kept at room temperature (about 25 C.) for about two weeks before they were examined for flagellates.

No positive culture of the flagellates was expected from the circulating blood of these patients. However, about 10 cc. of venous blood was withdrawn and defibrinated. About 0.5 cc. of this blood was inoculated into each of several tubes of N. N. medium; then these tubes were rubber-capped and incubated at room temperature.

Staining the Parasites.—Smears made from cultures showing a positive growth of flagellates were fixed with absolute methyl alcohol and stained by MacNeal's tetrachrome or a combination of the Wright-Giemsa

methods. The smears from the scrapings of the ulcer from the first patient were stained at the Eighth Service Command Laboratory with the combination Wright-Giemsa technic.

EXPERIMENTAL DATA

Slants of blood agar medium which were inoculated with the aspirated material from both patients were examined microscopically after seventeen days of incubation and were found swarming with flagellates, as may be seen from the table. The flagellates were leptomonad in form and were actively motile; both large and small rosettes were seen frequently. Smears stained with MacNeal's tetrachrome or with the Leishman or Wright-Giemsa stains showed a deeply colored, large, more or less centrally located nucleus and a more deeply colored, anteriorly located blepharoplast. A long flagellum extended from the anterior end of the parasite, and there was no evidence of an undulating membrane.

Much morphologic variation was noted in specimens from two to twenty day old cultures. Long forms, spindle shaped forms, large subspherical shapes and

Cultivation of Leishmania Donovanii and Leishmania Tropica from Exogenous Cases of Leishmaniasis

Exogenous Cases of leishmaniasis in the United States	Demonstration of Leishman-Donovan Bodies in Smears			Cultural Tests		
	Circulating Blood	Bone Marrow	Ulcer	Circulating Blood	Bone Marrow	Ulcer
Case 1 Kala-azar (visceral leishmaniasis).....	+	+	..	After 21 days	After 7 days	..
Case 2 Kala-azar (visceral leishmaniasis).....	0	+	..	+	+	..
Case 3 Oriental sore (cutaneous leishmaniasis).....	0	Not performed	+	0	Not performed	+
Case 4 Oriental sore (cutaneous leishmaniasis).....	0	Not performed	+	0	Not performed	+

large round forms often were observed, frequently appearing in dividing stages. Small, round, interkinetic forms were also found. The blepharoplast stained a deep bluish purple. The nucleus appeared a deep reddish purple and was not homogeneous in character. The cytoplasm was finally granular but often contained fairly large, strongly basophilic granules. The cytoplasm of some flagellates was vacuolated. The flagellum was usually about one and a half times the body length, which at times was traced in the cytoplasm up to the blepharoplast.

Cultural tests of venous blood, obtained from both patients, were examined on the fifteenth and forty-fourth days of incubation and all were found negative for flagellates.

The smears which were made from the scrapings from the first patient and stained with combination Wright-Giemsa methods revealed a few parasites suggesting Leishman-Donovan bodies. No smears were made from the lesion of the second patient. However, after obtaining positive culture of *Leishmania tropica* from the sore, the Eighth Service Command Laboratory had checked the ulcer and found Leishman-Donovan-like bodies in the scrapings from the ulcer.

8. Craig, C. F.: Laboratory Diagnosis of Protozoan Diseases, Philadelphia, Lea & Febiger, 1942.

9. Nicolle, C.: Culture du parasite du bouton d'orient, Compt. rend. Acad. d. sc. 146: 842, 1908.

10. Novy, F. G., and MacNeal, W. J.: On the Cultivation of Trypanosoma Brucei, J. Infect. Dis. 1: 1, 1904.

The strains of the flagellates, which were obtained from both patients on blood agar slants (N. N. medium), were subcultured at varying intervals and are still alive. These flagellates can neither morphologically nor culturally be distinguished from the other strains and the accepted descriptions of *Leishmania tropica*. Incidentally, the strains of *Leishmania tropica* which were isolated from these patients were found also to be identical, morphologically and culturally, with the strains of *Leishmania donovani* which I had recently cultured in California from 2 exogenous cases of visceral leishmaniasis (Munter and Packchanian¹¹).¹²

CLINICAL ASPECTS AND EPIDEMIOLOGY

(a) *Clinical Findings and Treatment.*—The incubation period is usually long and variable; the earliest lesion is usually a small papule, similar to that made by the bite of an insect. Later it develops into an ulcer, which may reach from 4 to as much as 8 cm. in diameter. A dark crust which exudes sticky fluid forms over the lesion. The raised, rimlike edge of the ulcer is not undermined and may be relatively smooth or ragged. If the crust over the center is removed, bleeding usually occurs freely and exposes a moist, superficial ulcer. The ulcers never occur on the palms, soles of the feet or the hairy scalp but are commonly found on the exposed portions of the body. Lesions may be either single or multiple. The Wassermann test is negative, and the formol-gel and serum water tests used for visceral leishmaniasis are negative. The disease as it is found in the Old World is ordinarily self limited and heals within six to twelve months with or without medical care. The sore leaves a deep, button-like depressed scar. Permanent immunity is apparently established after one infection.

In South America cutaneous leishmaniasis, which follows a similar course but often also attacks the mucous membrane, is more severe and if untreated may last several years (Chandler,¹³ Strong,² Wright⁴).

Cutaneous leishmaniasis may easily be confused with yaws, leprosy, syphilis (bejel), blastomycosis, facial lupus or cutaneous tuberculosis (Chandler,¹³ Strong,² Wenyon⁵).

If the ulcer occurs singly and is not very extensive, local treatment with an ointment containing 2 per cent of antimony and potassium tartrate or local injections of 2 to 3 cc. of a 1 per cent solution of berberine sulfate have therapeutic value. The pentavalent antimony compounds also can be injected around the ulcer. In more severe cases, however, particularly when the lesions are multiple, intravenous injections in step-up doses of pentavalent antimony preparations, such as neostibosan, solustibosan, ureastibamine (urea and stibamine) or neostam, are necessary to produce curative results (Chandler,¹³ Strong,² Wenyon⁵).¹⁴

(b) *Reservoir Hosts and Transmission.*—It is claimed that dogs may serve as a reservoir and that the disease is transmitted interchangeably between men, dogs and men and dogs chiefly by various species of sand flies (*Phlebotomus*) (Chandler,¹³ Strong,² Wenyon⁵). It is suspected that some species of lizards

may also serve as a reservoir and that mechanical transfer of the disease may take place by means of personal contact or by house flies (Chandler,¹³ Strong,² Wenyon⁵).

(c) *Geographic Distribution of Cutaneous Leishmaniasis.*—The disease is endemic in many tropical and subtropical countries in both the Western and Eastern hemispheres (Chandler,¹³ Strong²). It is found most commonly in the Mediterranean littoral and adjacent territories, as Asia Minor, Syria and Palestine. In Africa it occurs in Morocco, Tunis, Algeria, the Sahara, Egypt, the Sudan, Abyssinia, the French Congo, the district of Lake Chad and Nigeria. In India, important centers of infection are Delhi, Lahore and Multan.

In Europe the disease is endemic in the Mediterranean Islands of Sicily, Cyprus, Crete and Sardinia and has been recently introduced by returning soldiers or immigrants into southern France, Italy, Spain and Greece.

In the Western Hemisphere leishmaniasis occurs commonly in Brazil, Peru, Guiana and Paraguay. So far, cases have been reported from Mexico and from every country of South and Central America except Chile and Patagonia (Chandler,¹³ Strong²).¹⁵

In the areas where oriental sore occurs most frequently, nearly every individual has had cutaneous leishmaniasis and practically every person in such localities (as Bagdad and Haleb) has facial scars from this disease.

Obviously, cutaneous leishmaniasis is endemic and widespread in many parts of the world. Whether or not any considerable number of the United States troops who have been stationed in these regions will contract cutaneous leishmaniasis and manifest symptoms after their return to this country remains to be investigated. Since the incubation period of leishmaniasis is at times very long and since no lesions are visible during this stage, the probability of unrecognized cases entering the United States is strong (Chandler,¹³ Strong,² Wenyon⁵). The fact that there have been already 2 cases of cutaneous leishmaniasis in returned soldiers and that 499 proved cases of leishmaniasis have been recently diagnosed in the American armed forces in the Middle East (Ball¹⁶) indicates that such a possibility cannot be ignored.

In the early part of 1939 6 cases of exogenous cutaneous leishmaniasis were called to my attention by Dr. D. A. Berberian¹⁷ of the University of Beirut. These patients, medical students from the United States, had acquired the infection while in the Near East and were under treatment in New York City and Texas. Another unpublished case of exogenous, cutaneous leishmaniasis also was called to my attention during 1941. This was in a student from Delhi, East India, who was attending the Colorado School of Mines. He entered the United States approximately six months before the diagnosis was made (February 1941) by Dr. John Ambler and verified by Dr. E. R. Mudge¹⁷ of the University of Colorado School of Medicine.

Additional exogenous cases of both cutaneous and visceral leishmaniasis have been reported by other investigators (Dwork,¹ Munter and Packchanian¹¹). These reports, together with the present communi-

11. Munter, E. J., and Packchanian, A.: Two Exogenous Cases of Visceral Leishmaniasis (Kala Azar) in California with Notes on Cultivation of *Leishmania donovani* in Vitro, to be published.

12. *Leishmania tropica* never has been isolated from the peripheral blood of patients suffering with cutaneous leishmaniasis (Oriental sore); however, *Leishmania donovani* often can be cultured from the peripheral blood in cases of visceral leishmaniasis (kala azar).

13. Chandler, A. C.: Introduction to Parasitology, New York, John Wiley & Sons, 1940.

14. Neostam (stibamine glucoside) can be purchased from Burroughs and Wellcome, New York City Branch, and Neostibosan (ethylstibamine) from the Winthrop Company, New York.

15. In South America, espundia, or mucocutaneous leishmaniasis, is attributed to a different strain of *Leishmania tropica* which is known as *Leishmania braziliensis*. Several authorities, however, regard the two terms as synonymous (Chandler,¹³ Strong,² Wenyon⁵).

16. Ball, D., and Ryan, R. C.: Cutaneous Leishmaniasis, Bull. U. S. Army M. Dept., 1944, no. 79, p. 65.

17. Mudge, E. R., and Ambler, J.: An Exogenous Case of Cutaneous Leishmaniasis in Colorado, personal communication to the author, 1941.

cation, indicate that the incidence of this disease is sporadic from coast to coast.

The fact that we have occasional exogenous cases of leishmaniasis which have been diagnosed by specialists in the United States suggests that similar unrecognized cases may occur from time to time and that it is increasingly important that clinicians and health officers be on the alert for exogenous leishmaniasis.

COMMENT

For an absolute diagnosis of cutaneous leishmaniasis it is essential (a) to demonstrate the aflagellar forms, Leishman-Donovan bodies, in smears that are made from the scrapings from the lesion and (b) to culture the flagellated forms of the parasite on suitable medium (infective material for the inoculation of culture medium may be secured from biopsy, from scrapings from the margins of the ulcer or from aspirated material from the inflamed zone surrounding the ulcer). A diagnosis based only on the demonstration of Leishman-Donovan bodies is insufficient, because occasionally yeastlike micro-organisms or other extraneous materials are found in smears and are confused with Leishman-Donovan bodies. This is particularly true if the smears are not well stained. During the fall of 1941, when I was at the National Institute of Health, I found no proof when I examined the original preparations on which Benedek⁶ based his diagnosis of autochthonous leishmaniasis. At about the same time Wenyon⁷ independently reached the same conclusion.

On the other hand, when suitable culture medium is inoculated with material containing aflagellar forms of *L. tropica* and incubated at room temperature for about ten days, a luxuriant growth of readily recognizable flagellates is obtained. The flagellates are leptomonad in form, are actively motile and colonize on the slanted portion of the blood agar.

In general, an absolute diagnosis of visceral leishmaniasis is dependent on the same factors as is cutaneous leishmaniasis. In the latter, smears and cultures are secured from the ulcer and the surrounding inflamed areas. In the former, smears and cultures are obtained from the bone marrow, the liver, the spleen or the circulating blood.

The cultural method is an important aid for the diagnosis of leishmaniasis and should be utilized always, even though it may take from one to three weeks before positive laboratory findings can be available. Positive cultures never have been obtained from the peripheral blood of patients with the cutaneous leishmaniasis (oriental sore), but cultures of flagellates may be secured easily from peripheral blood of patients suffering with visceral leishmaniasis (kala-azar) (Craig,⁸ Munter and Packchianian¹¹).

During the present study, positive cultures of flagellates were observed seventeen days after N. N. medium was inoculated with infective material; however, it is possible to find growth on this medium as early as ten days. If no growth is found by the end of thirty days the culture may be considered negative. When it is desired to maintain strains of *Leishmania tropica* in the laboratory, subcultures should be made at intervals of two or three weeks. In my experience two months old cultures of *Leishmania tropica* which were grown on N. N. medium produced subcultures rarely, and four months old cultures gave entirely negative results; however, biweekly or monthly transplants gave 100 per cent positive subcultures (Packchianian¹⁸).

SUMMARY

Positive cultures of *Leishmania tropica* were obtained from ulcers of one white and one colored American soldier who had recently returned from the Near East and had been hospitalized in Texas.

The cultivation of *L. tropica* and *L. donovani* in vitro is essential before an absolute diagnosis of leishmaniasis is made.

Ordinary blood agar slants, containing 15 to 30 per cent of defibrinated rabbit blood and an ample amount of water of condensation, produced excellent growth of the flagellates. The flagellates were subcultured at intervals of two to three weeks. They grew luxuriantly and colonized on the blood agar slants (simplified N. N. medium).

The report of cases of exogenous leishmaniasis in the American soldiers in the United States within the last year is an indication both of the expected increase in the incidence of these diseases and of the necessity that physicians and public health officials should use vigilance in the recognition of leishmaniasis and should increase their precautions against the establishment of this disease in the United States.

TRANSVERSE MYELOPATHY FOLLOWING RECOVERY FROM PNEUMOCOCCIC MENINGITIS

TREATED WITH PENICILLIN INTRATHECALLY

REPORT OF CASE, WITH A NOTE ON CURRENT METHODS OF THERAPY

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Widespread use of penicillin has aroused interest in the management of acute bacterial meningitis. Perhaps the most fatal type has been pneumococcal meningitis, but recent reports have offered hope that at long last we possess a potent weapon against this disease. The case herein reported illustrates the occurrence of an unusual complication, transverse myelopathy, in the course of recovery from acute bacterial meningitis. This sequel is of particular current interest because of the recent report by Sweet and his co-workers¹ of severe though reversible spinal cord or nerve root damage following recovery from pneumococcal meningitis treated with penicillin intrathecally.

REPORT OF CASE

A woman aged 66, admitted to the hospital in a state of restless stupor, had awakened that morning at 8, according to her physician, complaining of pain in and behind her left ear. When he saw her one hour later he had to irrigate the external canal in order to obtain a view of the tympanic membrane, which appeared only slightly reddened. Four hours later the patient became nauseated and vomited. She became rapidly drowsier and soon lapsed into a stupor from which she could not be aroused. There was a progressive rise in temperature, which had reached 103 F. by evening.

On admission, the night of Oct. 15, 1944, the patient was thrashing about in bed, unable to cooperate in the examination. Her temperature was 103.4 F., pulse rate 84, respiratory rate 30. The blood pressure was 126/80. A stiff neck and positive Kernig's sign were present. There were a few medium rales over the right lower lobe. With the aid of restraints a lumbar

From the Mount Sinai Hospital.

18. Packchianian, A.: On the Viability of Various Species of *Trypanosoma* and *Leishmania* Cultures. *J. Parasitol.* 29: 275, 1943.

1. Sweet, L. K.; Dumoff-Stanley, E.; Dowling, H. F., and Lepper, M. H.: The Treatment of Pneumococcal Meningitis with Penicillin. *J. A. M. A.* 127: 263-267 (Feb. 3) 1945.

puncture was readily performed and cloudy fluid obtained. Direct smear showed many polymorphonuclears and innumerable gram-positive, slightly lanceolate diplococci. A second spinal tap was performed and 10,000 units of penicillin in 10 cc. of sterile isotonic solution of sodium chloride was introduced into the subarachnoid space. In addition intramuscular penicillin was ordered, 10,000 units every three hours. Not long afterward continuous intravenous instillation was started with the addition of sodium sulfadiazine, 6 Gm. at first and 1 Gm. every four hours thereafter.

The next day extreme restlessness was present necessitating much sedation, the most effective sedative being paraldehyde intravenously. Lumbar punctures were performed twice daily. Laboratory examination shortly after admission revealed spinal fluid 1,740 cells, 90 per cent polymorphonuclears. Direct typing showed pneumococcus type XIX. Blood culture on the day after admission was sterile. Blood count revealed hemoglobin 73 per cent, red blood cells 4,100,000, white blood cells 33,300, with polymorphonuclears 87 per cent (nonsegmented forms 36), lymphocytes 10, myelocytes 1, monocytes 2. Pronounced toxic granulation of polymorphonuclears was present. Urine examination was negative.

The consulting neurologist found no focal signs and recommended combined penicillin and sulfonamide therapy. The ear, nose and throat consultant described the left drum membrane as dusky with landmarks present, and the light reflex present

noted. The patient complained of pains in both legs. For the following five days the patient's temperature remained normal. On October 28 x-rays of the mastoids were taken and found to show but slight haziness on the left. X-rays of the paranasal sinuses showed moderate clouding of the ethmoids but were otherwise negative. In the absence of all clinical symptoms and signs no further ear, nose and throat investigation or treatment was thought necessary.

In view of the favorable course, the problem of when to stop treatment was paramount during the second week. Intraspinal penicillin was decreased to 20,000 units daily, intramuscular penicillin to 15,000 units every three hours. Sulfadiazine was likewise continued. Treatment was persisted in because of the continued low spinal fluid sugar and despite the absence of organisms. Not until the fourteenth day did this reach and remain above 40 per hundred cubic centimeters.

On October 31, the sixteenth day after onset, there was a temperature rise to 101.8 F. and the patient complained of weakness in the left leg. The next day complete flaccid paralysis of both lower extremities was present. The deep reflexes in both lower legs were gone and bilateral Babinski was present. Loss of all sensation from the tenth thoracic segment down was observed. Bladder function, which had returned five days previously, again lapsed, the patient being in retention. The lumbar puncture at this time revealed slightly turbid, yellowish fluid containing 600 cells, without any evidence of block by manometric study. The diagnosis of transverse myelopathy was made and all therapy stopped.

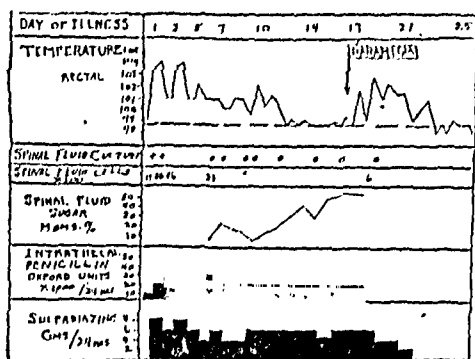
The neurosurgical consultant did not think the spinal cord lesion remediable by surgery and he opposed exploration. X-rays of the dorsal spine were negative. Manometric studies repeated at intervals showed persistent absence of block. The spinal fluid count fell to 50, then to 6 cells.

During the following four months the patient's flaccid paraplegia has given place to a spastic paraplegia in flexion. Only a slight degree of motor power is present in the lower extremities, the patient being absolutely bedridden. There has been some return in sensation, particularly to pain. Bladder retention has given way to incontinence. Urinary tract infection is under control with repeated courses of sulfadiazine in small dosage. The prognosis as to further return of function appears very poor indeed.

COMMENT

Transverse myelopathy, whether due to true myelitis or to myelomalacia on a toxic or vascular basis, is distinctly uncommon in the course of acute bacterial meningitis. Thus it is barely mentioned in discussions of the sequelae of meningococcal meningitis.² Occasional instances of paraplegia marring recovery from meningococcal meningitis were observed in the pre-sulfonamide era.³ Intraspinal therapy with serum or dye was usual at that time, so that the complication could be ascribed either to the disease or to the therapy employed.

Pneumococcal meningitis has until recently been so uniformly fatal that little attention needed to be paid to its possible sequelae. However, vascular involvement by the intense inflammatory process is a recognized part of the pathology and might explain certain of the complications of this disease, including transverse myelopathy. An analogous instance has been reported in the course of *Streptococcus hemolyticus* meningitis.⁴ In that case paraplegia occurred although no intrathecal treatment was administered. Autopsy revealed a severe spinal meningitis causing compression of blood



Clinical course.

but interrupted. There were no canal wall changes, no clinical signs of mastoiditis and no indication for surgical intervention.

In the two days following the patient's condition steadily worsened. Stupor gave way to coma, which deepened hourly. All reflexes disappeared. There was no longer any reaction to painful stimuli. The respiratory rate increased to 50 per minute. Throughout the fourth day Cheyne-Stokes breathing alternated with a stertorous tachypnea. The temperature varied between 101 and 103.8 F. The spinal fluid cell count reached 8,850, but on smear only two pair of intracellular diplococci could be seen. Grossly the spinal fluid was very turbid and distinctly blood tinged, and it flowed freely. The concentration of blood sulfadiazine was 22.8 mg. per hundred cubic centimeters. Because of the serious clinical condition of the patient the daily intrathecal penicillin dosage was raised to 40,000 units and intramuscular penicillin to 20,000 units every three hours.

Definite clinical improvement was noted on the fifth and sixth days of the disease. The coma lightened and slight signs of restlessness appeared. On the evening of the latter day the patient's face began to take on its normal expression, ocular movements were observed and the following morning she asked for food. The spinal fluid was sterile and showed a drop in cell count but contained less than 10 mg. of glucose per hundred cubic centimeters. Residual neurologic findings noted at this time were ptosis of the right upper lid and unequal fixed pupils. Reflexes in the lower extremities were still somewhat depressed but there were no pathologic reflexes. The temperature fell to 100 F. Two days later there was another rise to 102.2 F. and the deep reflexes were found hyperactive, with slight right ankle clonus. Equivocal Babinski reflexes were

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vessels with resulting thrombosis of the anterior spinal artery. However, in the present case the active meningitis had apparently subsided before the paraplegia supervened. Nonetheless it is possible that, even when the acute inflammatory process is over, residual vascular damage may cause a complication of this type. The myelopathy encountered in this case may thus be one of the late, natural sequelae of severe pneumococcal meningitis, which are only now becoming manifest as we establish partial control over the disease by means of chemotherapy.

The recently published experience of Sweet and his co-workers prompts further discussion as to the possible relation of this form of spinal cord damage to the intraspinal therapy with sodium penicillin. The cause of the unusual parenchymatous damage which they observed could not be definitely assigned, but the intraspinal penicillin was suspected to the degree that a warning was sounded against too vigorous treatment of this kind. In 2 of their 7 cases in which recovery occurred a neurogenic bladder with overflow incontinence was observed more than two weeks after the onset of the disease. In 1 case paraplegia occurred from which almost full recovery occurred, though only after an interval of three months. These 2 patients, both adults, received intensive intrathecal treatment for a week or more, the daily dose being 80,000 units in 1 instance and 40,000 units in the other. In an earlier report, Waring and Smith⁵ employed combined penicillin and sulfonamide therapy in 12 cases and observed the occurrence of optic atrophy, with total blindness as a permanent sequela in 1 case. In this patient, a 2 month old infant, treatment was started on the second day with an initial dose of 20,000 units intraspinally, which produced rapid sterilization of the meninges. In their discussion they state that "this occurrence may bear no relationship to the intrathecal dose of penicillin but it should give us pause before injecting unnecessarily large doses of penicillin into the spinal canal."

The Waring and Smith series includes 10 other patients who recovered without incident and who received no more than 10,000 units of intraspinal penicillin twice daily. For younger patients the dose at each injection did not exceed 5,000 units. In another small series reported by Harford and his associates⁶ there were 8 uncomplicated recoveries among 9 cases. Similarly low dosage levels of intrathecal penicillin were employed. The observations in these two groups of cases suggest that 10,000 units once a day is often adequate to sterilize the meninges. If necessary this dose may be given twice daily. Emphasis should be laid on the daily spinal fluid smear and culture for evaluating the results of therapy and as a guide to further dosage. Clinical observation alone may be faulty in that improvement may not be noticeable even when the spinal fluid has become sterile. Under such circumstances it is doubtful whether the employment of larger doses of intraspinal penicillin serves any useful purpose, and it may invite the possibility of severe, even irreversible central nervous system damage. As early termination of intraspinal treatment as possible is also desirable. In some instances of pneumococcal meningitis an active feeding focus may well prevent permanent recovery no matter how long treatment is continued. Relapse of meningitis should suggest the

need for surgical eradication of such a focus as well as the need for continuance of chemotherapy.⁷

Intraspinal treatment of meningitis, so long an accepted technique, had begun to fall into disrepute before oral sulfonamides rendered it obsolete. Hoyne⁸ successfully treated 40 cases of meningococcal meningitis with intravenous antitoxin alone. Meningeal reactions had been observed to the intraspinal administration of serum or air, and Wechsler⁹ relegated lumbar puncture in meningitis to the status of a diagnostic technique. Further illustration of the occasional serious complication of usually harmless intraspinal treatment is afforded by the occurrence of severe, even fatal, toxic myelopathy following spinal anesthesia.¹⁰ In the present case the concentration of penicillin solution for intraspinal use was not more than 1,000 units per cubic centimeter. Yet the fundamental observations of Rammelkamp and Keefer had shown that even with this dilution pleocytosis of considerable degree is a usual response.¹¹ It has been suggested that employment of the alkaline sodium salt of penicillin may be particularly responsible for this degree of meningeal irritation.¹² One may recall the disastrous reactions, including myelopathy, which followed the intrathecal administration of sodium sulfapyridine for meningitis in the early days of sulfonamide therapy.¹³

There exists some difference of opinion at present as to whether penicillin given intramuscularly or intravenously reaches the spinal fluid in effective concentration for the treatment of meningitis¹⁴ although it is an accepted fact that it does not reach the normal spinal fluid in significant amounts. That this dispute may be academic is strongly suggested by the experience of Price and Hodges.¹⁵ They report the successful treatment of bacterial meningitis, including 2 cases of the pneumococcal variety, with penicillin given only parathecally. It is probable that there has been too much emphasis on the need for administering penicillin intrathecally just as there was in an earlier day on the use of intraspinal serum in meningococcal meningitis. The current controversy concerning spinal fluid levels of penicillin recalls the doubts expressed as to the probable efficacy of sulfadiazine in meningitis. The relatively low spinal fluid concentration of this drug has been found to bear no relationship to its therapeutic value. Indeed, Price and Hodges question the entire rationale of intraspinal treatment: "It is uncertain, however, whether or not the presence of penicillin in the spinal fluid is actually necessary to control infection. If the infection involves the meningeal membranes primarily it would seem that penicillin given intravenously reaches the involved tissues through the blood supply, as it does elsewhere in the body."

The most effective and the safest method for the employment of penicillin in the treatment of pneumo-

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coccic meningitis is thus still an open question. Conservatively it is probably still desirable to use it intrathecally for the first few days of the disease. But this should be in limited amount, not more than 10,000 units in 10 cc. of isotonic solution of sodium chloride at each injection. On the other hand, greater emphasis should be placed on the use of larger doses of intramuscular penicillin, which should be continued after intraspinal treatment is over. Present experience suggests that the addition of the sulfonamides may increase the effectiveness of therapy.

SUMMARY

A woman aged 66 recovered from a fulminating pneumococcus type XIX meningitis. Therapy consisted of penicillin administered both intrathecally and intramuscularly. Sulfadiazine also was given. Paraplegia, bladder paralysis and sensory loss below the tenth thoracic segment, indicative of transverse myelopathy, supervened several days after apparent subsidence of the meningitis.

This serious and apparently permanent complication may be regarded as a natural although rare sequela of the disease. Or it may be due to intensive intraspinal penicillin therapy. In view of the latter possibility it is urged that greater emphasis be placed on the employment of large doses of penicillin by the intramuscular route. Intrathecal administration might well be limited to the first few days of therapy and the dose per injection to 10,000 units.

111 East Eighty-Eighth Street.

Clinical Notes, Suggestions and New Instruments

BILATERAL OPTIC ATROPHY AS A SEQUELA TO THROMBOCYTOPENIC PURPURA

PAUL V. CARELLI, M.D., AND JOSEPH P. CANGILOSI, M.D.,
CHICAGO

Bilateral optic atrophy is rarely observed as a sequela in patients suffering from thrombocytopenic purpura.

A recent review of the literature by Watkins, Wagener and Brown¹ tends to show the rather infrequent observance of "choked disk" in purpura hemorrhagica, but optic nerve atrophy was not noted in these cases.

Michail² reported 1 case of bilateral optic atrophy as following purpura hemorrhagica, in which irradiation of the spleen caused a disappearance of the petechiae but the eye condition did not improve. He also cites a case reported by Narog and another by Schall in which hemorrhages into the retina were present.

Several cases of intracranial hemorrhage following purpura hemorrhagica have been reported at necropsy and reviewed by Alpers and Duane.³ These cases involve cerebral, ventricular and meningeal hemorrhages which vary in size from small pin-head hemorrhages to lentil-size lesions.

Choking of the disk may reach quite a high degree, as in the case of Herzfeld and Rohrschneider,⁴ in which there was choking of 4 and 5 diopters with no localizing signs. This choking later receded in the course of two months. The same was true

in the case reported by Alpers and Duane, in which the choking disappeared completely.

In 1916 Kaznelson⁵ recommended splenectomy for the cure of thrombocytopenic purpura. In addition Whipple⁶ reported a series of cases in which a high mortality (87 per cent) resulted because the spleen was removed during the acute stage of the disease. In his report he strongly advised against splenectomy during the stage of active bleeding.

Greenwald⁷ has recommended the use of snake venom as a means to control active bleeding in thrombocytopenic purpura.

REPORT OF CASE

A white boy aged 6 years, of Italian parentage, was first seen Nov. 26, 1943 because of uncontrollable epistaxis. The child was perfectly well until one week prior to the onset, when he developed an upper respiratory infection. He was not seen at that time and was permitted to continue at school. There was no history of trauma and no exposure to toxic agents or familial history of ready bruising.

The child was admitted to St. Elizabeth Hospital and examination disclosed the following essential findings:

The patient was definitely anemic in appearance, and hemorrhagic areas were present over the eyes, forehead, lips and lower extremities. Laboratory data revealed hemoglobin 80 to 85 per cent, leukocytes 16,800 and erythrocytes 4,300,000. The platelet count was 42,520, while the bleeding time was thirty minutes and the clotting time three and one-half minutes. Urine examination disclosed numerous white blood cells and a trace of albumin. A diagnosis of purpura hemorrhagica following upper respiratory infection was made.

Treatment consisted of rest in bed, vitamins C and K by mouth, 0.3 cc. of snake venom hypodermically daily and 125 cc. of compatible whole blood daily for two weeks.

About one week after admission the child became irrational at times and complained of headaches and soreness of the neck. At this time there developed blood in the stools; the urine was blood tinged and the platelet count dropped to 3,710.

On December 10, which was the second week of hospitalization, the patient suddenly called for his mother, who was at his bedside, stating that he could not see her. Ophthalmologic examination one week later revealed, in the right eye, doubtful light perception; ecchymotic spots were present on the lids, and the eye appeared slightly prominent. There was limitation of the ocular movements externally, superiorly and inferiorly. The pupil was dilated 3 mm. and fixed to light reaction. The fundus was normal. In the left eye there was doubtful light perception, with injection of the palpebral and bulbar conjunctiva and a staining infiltrate of the cornea at about 5 on the clock dial. The pupil was similar to the right one. The fundus showed a slight blurring of the disk margins, with large hemorrhages at the superior portion of the disk and smaller hemorrhages in the inferior portion.

Diagnosis was made of left corneal infiltrate and left retinal hemorrhages.

It was assumed that the child had suffered some intracranial damage, probably subarachnoid hemorrhage or hemorrhage into the optic nerve sheath and probable hemorrhage into the orbit.

Under therapy the corneal infiltrate healed and sixteen days after the onset of ocular symptoms both disks were pale, showing signs of beginning optic atrophy. The platelet count had risen to 19,640.

On Jan. 12, 1944, which was about six weeks after admission to the hospital, the child was operated on. An abdominal exploration revealed a very large liver extending past the midline to the left and a much enlarged spleen, about four times normal size. A splenectomy was performed. On the second postoperative day the erythrocyte count was 4,660,000 and the platelet count had risen to 327,660. The child continued to improve and two months after admission was discharged from the hospital. At the present writing the eye findings reveal doubtful light perception and bilateral optic atrophy.

From the Ophthalmological and Surgical Departments of St. Elizabeth Hospital.

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COMMENT

This case report is of interest (1) because of the rare occurrence of bilateral optic atrophy as a sequela to thrombocytopenic purpura, (2) a splenectomy performed during the quiescent stage of the disease produced an almost immediate return to normal of the blood picture and (3) the eye findings are still unchanged twenty months after the onset of the disease.

3626 West Chicago Avenue—1605 West Chicago Avenue.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, Secretary.

HEIDBRINK OXYGEN TENT ACCEPTABLE

Manufacturer: The Ohio Chemical & Manufacturing Company, Heidbrink Division, Minneapolis.

The Heidbrink Oxygen Tent Model 75B is designed for administering oxygen therapy. The unit is well constructed. The mechanical parts operate as they are designed to do. Diffusion through fabric constitutes a safety factor, as far as accumulation of carbon dioxide is concerned. The unit submitted was tested in a laboratory acceptable to the Council.

Cooling Efficiency.—The air chamber was filled with cracked ice and the tent flaps were tucked under the mattress according to instructions and circulation turned on at "high" with valve for cooling at "cold." Room temperature was 70 F., room humidity 40 per cent.

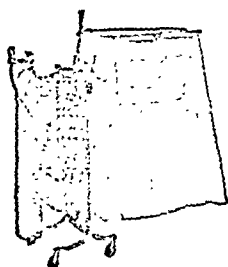
In 5 minutes the tent temperature was 64 F.; in 15 minutes the tent temperature was 60 F.; in 50 minutes the tent temperature was 55 F., relative humidity 60.

It may be presumed from this experiment that sufficient decrease in temperature of the atmosphere of the tent would result on a hot day in keeping it at or below the point of comfort when it contains a patient. Whether the tendency toward an increase of relative humidity when added to the humidity produced by the patient might become a factor of discomfort was not determined. Since "dryness" was a complaint of a subject in the tent without ice, it seems probable that ice is as important from the standpoint of humidity as it is for cooling.

From further experiments, one may conclude that:

1. Facilities for the control of oxygen and humidity are adequate.
2. With no soda lime in place, a flow of 4 liters or more, and circulator set at 3 or more, carbon dioxide will not accumulate above the manufacturer's limit of 1.5 per cent carbon dioxide.
3. A flow of less than 4 liters per minute of oxygen is inadequate for efficient oxygen therapy.
4. Although circulation of the atmosphere alone eliminates considerable carbon dioxide (diffusion through leaks and fabric) it also eliminates oxygen, thus requiring a higher flow of oxygen.
5. Humidification from ice may be as important from the standpoint of comfort as is its cooling effect.
6. Elimination of carbon dioxide and patient comfort can apparently be controlled by rapid circulation and fast flow of oxygen. However, extremely fast flows of oxygen are then necessary to maintain effective concentrations.
7. Finally, as compared with other tents designed for the therapeutic administration of oxygen, this apparatus is compact and well built.

The Council on Physical Medicine voted to include the Heidbrink Oxygen Tent Model 75B in its list of accepted devices.



Heidbrink Oxygen Tent
Model 75-B.

ALTEX MATTRESS AND PILLOW ENCASINGS ACCEPTABLE

Manufacturer: Expert Bedding Company, 2454 North Halsted Street, Chicago.

An "Altex" mattress and pillow encasings are used by allergic patients sensitive to bedding dusts or to the materials ordinarily used in the manufacture of mattresses and pillows.

"Altex" mattress and pillow encasings are made of bleached white cotton cloth, backed and bonded with synthetic rubber. The mattress encasing has an interior flap which is held in place by the weight of the mattress pressing down on the flap and holding it tight in place. Closure is effected with a button fastener, and the exterior is lowered to cover the button fastener.

The pillow interior flap sheath is used as a block for any heavy dirt or dust and is held in place the same way as the mattress encasing.

All sewing is first done in the raw seams, which are then bias bound, a double stitch being made. All seaming and binding is done on the inside of the encasing.

Perspiration and soap boiling tests were made in the standard perspiration solution used by rubber chemists, and soap tests were made by boiling the samples in 2 per cent soap solution for a period of twenty hours; the results were shown to be negative.

Small bags of the material were sewn and filled with water. Tests showed that in the beginning there was a small drip of water; after two hours there was considerable swelling of the threads and seams, and thereafter the loss of water was by evaporation alone.

In a laboratory acceptable to the Council an "Altex" pillow encasing was examined. It was found to be well made and adequate for the purpose. It stands dilute acid, dilute alkali, various organic solvents and washing very well.

"Altex" encasings are guaranteed for one year from the date of shipment against deterioration, rips and such other factors as may be the result of faulty material and manufacture.

"Altex" encasings are sold on recommendation of the physician alone. None of them are sold through the avenues of retail stores.

The Council on Physical Medicine voted to accept the "Altex" pillow and mattress encasings for inclusion in its list of accepted devices.

Council on Foods and Nutrition

ACCEPTED FOODS

The following additional foods have been accepted as conforming to the Rules of the Council on Foods and Nutrition of the American Medical Association for admission to Accepted Foods.

GEORGE K. ANDERSON, M.D., Secretary.

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, 1939, p. 156)

Heinz Company, Pittsburgh.

HEINZ STRAINED ORANGE PUDDING contains rice, 50% cream, skim milk powder, cornstarch, salt, sugar, whole eggs, vanilla concentrate ten-fold, fresh orange juice, fresh lemon juice and water to prepare.

Analysis (submitted by manufacturer).—Total solids 24.92%, total sugar as sucrose 13.92%, acidity as citric 0.12%, protein (N X 6.25) 1.73%, fat (by acid hydrolysis) 1.38%, crude fiber 0.05%, ash 0.70%, salt 0.38%, total carbohydrates other than crude fiber by difference 20.94%, calcium 36.0 mg. per hundred grams, phosphorus 39.0 mg. per hundred grams, iron 0.5 mg. per hundred grams, copper 0.1 mg. per hundred grams.

Calories.—1.03 per gram, 29 per ounce.

Vitamins.—	I. U./100 Gm.	Mg./100 Gm.
Carotene	55
Thiamine	0.025
Riboflavin	0.071
Ascorbic acid	3.68

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SATURDAY, OCTOBER 20, 1945

CONTROL OF AIR BORNE INFECTION

Statistics for the years 1933 to 1943 have shown a steadily mounting rate of absenteeism in industry due to respiratory diseases. The rate for 1942 was higher than that of any previous year of the ten year period 1933 to 1942, and in 1943 there was a further striking increase in the frequency of respiratory diseases. Stuart Mudd¹ suggests that the causes of this increasing rate of industrial disability due to respiratory diseases are to be looked for in overcrowding of workers in ill ventilated common carriers, trains, street cars and busses, rather than in the conditions of work in industrial establishments alone. He calculates that for the year 1943 there were lost to industry in the United States through respiratory diseases 128,000,000 man days and 93,000,000 woman days, or over 220,000,000 person days, or more than one third of the total number of person days lost to American industry by disability. This figure represents a waste of labor of about 740,000 persons working for a year.

The Wellss² demonstrated that transmission of infection through the air may be due to droplet infection proper or to the dried residue of infected droplets or droplet nuclei depending on air for the buoyancy that keeps them suspended for longer times and carries them longer distances. Information as to bacterial population can now be obtained in a relatively short time and under control conditions through the employment of recently developed sampling devices. Du Buy and Hollaender³ suggest the following devices for measuring the three physical forms and manner of settling of the air borne organisms: the open plate, any one of the atomizing methods and one of the impinging or sieve devices. The enclosed or living spaces present the principal source for the dissemination of respiratory diseases. The means for the reduction of the bacterial content of living spaces at present

include ultraviolet irradiation, dust suppressive measures and the use of germicidal vapors such as hypochlorous acid, propylene and triethylene glycol. The English investigators Thomas and van den Ende⁴ demonstrated that oiling floors and bedclothes was capable of reducing air borne bacteria in a hospital ward by 90 per cent. Robertson and his co-workers⁵ established that oil treatment of bedding can be adequately achieved by means of water-oil emulsions, which were employed as a final rinse in the laundering process. Tests by the National Bureau of Standards showed that the percentages of oil involved in this process did not constitute a fire hazard. The use of oil on bedclothes brought about a striking reduction in the aerial dispersion of bacteria which ordinarily occurs during bed making. Oiling the floors reduced by 70 per cent the number of air borne bacteria which occurred in the control barracks during the same period of maximum activity. Oiled bedding plus oiled floors effected a further reduction to about 90 per cent of the bacterial counts in the control barracks. Harris and Stokes⁶ studied the use of propylene glycol vapors in bactericidal concentration in wards of a children's convalescent home. The incidence of upper respiratory infection in these wards was much lower than in control wards. The fact that the greater majority of the upper respiratory infections in control wards were common colds provides, in their opinion, additional evidence of the virucidal effect of propylene glycol vapor and may give indirect evidence also of air borne transmission of the common cold.

The bacteriologic studies carried out by Deryl Hart and his co-workers⁷ established that air is an important source of contamination in every operative wound. They also demonstrated that sterilization of the air in the operating room can be accomplished by ultraviolet irradiation. Robertson and her associates⁸ obtained a striking reduction in cross infection in infant wards by ultraviolet irradiation. Wheeler and his associates⁹ describe a carefully controlled clinical study of the effect of the ultraviolet light control of air borne infections in a naval training center. Ultraviolet irradiation of the floors and upper air of barracks housing naval recruits was accompanied by a 25 per cent reduction of respira-

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tory illness in those barracks equipped with high intensity sources as compared with illness in the adjacent control barracks. This fact was most noticeable in the early winter months, when illness rates were at a general high level throughout the camp. At this time the reduction of incidence in barracks irradiated with high intensity sources as compared to the controls was approximately 35 per cent.

The practical utility of any control measure predicated on the reduction of the bacterial content of the air will depend on whether or not a large or a small proportion of respiratory disease is air borne. An increased body of evidence indicates that the amount of air borne infection is greater than was formerly believed. The methods thus far developed for the reduction of the bacterial content of living spaces constitute an important contribution to the total problem of control of respiratory diseases. Their practical application presents a number of problems the solution of which will call for cooperation of such specialists as physicians, engineers, architects, air conditioning engineers and manufacturers of special apparatus.

CATGUT TUBING FLUIDS

In 1943 a series of studies were reported on the irritant properties of surgical tubing fluids as a factor in tissue irritations.¹ These demonstrated that marketed specimens of nonboilable surgical gut contained up to 14 per cent by volume of high boiling aromatic carbons in the tubing fluids. These hydrocarbons were related to a coal tar distillate known as "xylene fraction," or solvent naphtha. The investigations also demonstrated that tubing fluids are potent tissue irritants. In the final paper Jenkins and Dunham showed that a sufficient amount of irritant water insoluble hydrocarbon was present in some tubing fluid to account for much of the tissue irritation that follows the use of catgut which had previously been attributed to properties of the catgut itself. The Chicago investigators therefore recommended the elimination of tubing fluid irritants from surgical gut.

Now Bower² reports a series of studies with rabbits and dogs in which he employed catgut sutures tubed in ethyl alcohol containing a percentage of "hi-flash solvents" from 0.1 per cent up to 15 per cent. Tissues surrounding the sutures were examined microscopically. Bower flatly contradicts the claim of Jenkins and his colleagues that the degree of irritant action is proportional to the amount of xylene-like solvent in the alcoholic tubing fluid. Bower also offers evidence

which he labels "conclusive" of the rapid absorbability and lack of irritating action of xylene when brought in contact with normal animal tissues.

The conflicting claims of Jenkins and his co-workers and of Bower require early settlement. The conclusion of Bower that the use of catgut tubing fluids containing "hi-flash solvent" does not produce excessive tissue irritation is surprising in view of the well known irritating properties of xylenes for tissue. If xylene can be proved not to have irritating properties for living tissue, it will be contrary to all past experience. If, however, Jenkins and his colleagues are right, there would seem to be little excuse for continuing to place surgical gut in a solution of potential harm to surgical patients.

PHYSIOLOGIC AND FINANCIAL ECONOMY IN NUTRITION

Satisfactory nutrition of a person or of a group of people depends ultimately on the money available for the purchase of food. Intimately involved in the solution of this essentially financial problem is the discovery of the factors that determine maximum economy in the physiologic utilization of essential nutrients. Generally acceptable standards must be established by which both human nutritional status and diets can be appraised. Now a standard for estimating the nutritional status of persons with respect to the need and the utilization of the vitamins by the body has been considered thoroughly and critically in a recent review by Dann and Darby,¹ who have suggested that five "zones" of nutrition be recognized: (1) nutritional saturation, (2) nutritional unsaturation without functional impairment, (3) potential nutritional deficiency, (4) latent nutritional deficiency disease and (5) clinically manifest nutritional deficiency disease. Nutritional saturation is intended to mean that the body is incapable of increasing its content of a given nutrient even with prolonged ingestion of large amounts. In the case of unsaturated but functionally unimpaired nutrition the body is considered to contain less of a given nutrient than at saturation but still sufficient quantity to prevent the development of functional abnormality detectable by known biochemical or physiologic tests. Potential nutritional deficiency disease is considered to exist in the absence of clinical evidence of deficiency if clinically manifest disease can be precipitated by physiologic stress on the organism or if suitable physiologic or biologic tests yield evidence of decreased reserve functional capacity. Latent nutritional deficiency disease is defined as the mildest clinically detectable form of deficiency disease as indicated by vague, indefinite and nonspecific symptoms which do not permit definite diagnosis but which may be alleviated by the administration of the proper nutrients. Clinically manifest nutritional deficiency disease in its

1. Dunham, Charles L., and Jenkins, Hilger P.: Surgical Gut (Catgut) Tubing Fluid as a Tissue Irritant, *Ann. Surg.* **118**:269 (Aug.) 1943. Sudell, Albert E., Jr.: Hydrocarbon Content of Nonboilable Surgical Gut Tubing Fluid, *ibid.* **118**:285 (Aug.) 1943. Jenkins, Hilger P., and Dunham, Charles L.: Irritant Properties of Tubing Fluids as a Factor in the Tissue Reactions Observed with Surgical Gut (Catgut), *ibid.* **118**:288 (Aug.) 1943.

2. Bower, John O.: The Fallacy of Surgical Gut (Catgut) Tubing Fluids as a Tissue Irritant, *Surg., Gynec. & Obst.* **81**:225 (Sept.) 1945.

1. Dann, F. P., and Darby, W. J.: *Physiol. Rev.* **25**:326, 1945.

mildest form requires laboratory and therapeutic tests for diagnosis; in its severest form the classic clinical syndrome may be diagnosed without recourse to laboratory tests or therapeutic trial.

Determination of the nutritional status of an individual in accordance with these standards is based on data obtained by clinical examination, by biochemical and physiologic tests and by measurement or estimation of the total dietary intake. Dann and Darby caution that clinical examinations usually detect only the well developed deficiency disease. In the diagnosis of mild forms of nutritional disease, clinical examinations must be supplemented by other procedures. The interpretation of most of these procedures, chiefly biochemical tests, is uncertain because these tests have not been correlated adequately in human subjects. They further caution that the dietary standards employed in estimating dietary adequacy are not founded on sufficient data obtained from human subjects. With regard to the use of dietary standards in determining nutritional status, these writers call special attention to a fundamental guiding principle: "Since the dietary standard possesses the properties of a mean, its usefulness as a yardstick for assessment of the mean intake of a nutrient by a population is considerably greater than its usefulness when applied to a valuation of the intake of an individual." The importance of the application of this principle in all nutritional surveys is obvious.

Although the zonal concept of the nutritional status of an individual or, indeed, of a population, as developed by Dann and Darby, may present certain difficulties, particularly with respect to the actual existence of zone 3 and the distinction between zone 4 and zone 5, an appraisal of nutritional status based on this concept is basically sound, and the standards proposed deserve careful consideration.

Current Comment

WHY TRADE NAMES FOR ANTIBIOTICS?

Pharmaceutical manufacturers of the United States made remarkable contributions to the war effort. Outstanding was the production and distribution of penicillin, which saved more lives than can probably ever be estimated. Now some manufacturers, perhaps overly alert to the drive for prestige and profits in the postwar period, seem ready to abandon cooperation and rational therapeutics. At least four firms are actively marketing or planning to market antibiotic preparations such as penicillin and tyrothricin under special trade names. These agents are among the most active and useful compounds that have ever been developed. Some of their usefulness will be lost by confusing their identity. The phenomenal success of sulfonamide therapy in the United States has been partly due to willingness to

make these compounds available under nonproprietary names. When a physician prescribes sulfanilamide, sulfathiazole, sulfadiazine or any other sulfonamide he knows exactly what he is prescribing. Such was not and is not now the case in other countries, where the sulfonamides have been offered under a multiplicity of names. What can manufacturers really gain by abandoning the prestige and publicity that have been given to penicillin and attempting in lieu thereof to establish new names which mean nothing to the medical profession? If their preparations are misused and if antibiotic therapy does not make the progress for which there is promise, these manufacturers must share the blame. The medical profession may well resent these attempts to muddy the clear waters of scientific advancement to conceal a desire for unwarranted individual profits.

BENZYL PENICILLIN

Research on penicillin has been pointed toward finding products of maximum clinical efficiency. Tainter and his associates¹ of the Winthrop Chemical Company claim that the benzyl ester of penicillin is sufficiently superior to ordinary sodium penicillin to merit clinical trial. Benzyl penicillin is prepared by treating free penicillin in an inert organic solvent with an excess of phenyl diazomethane. Any unreacted penicillin is extracted with sodium bicarbonate solution. Evaporation of the solvent yields a resinous product which can be heated well above 100 C. without deterioration. Routine *in vitro* tests against broth cultures of *Staphylococcus aureus* show that this compound is relatively inert, having only one-thirtieth the bacteriostatic titer of sodium penicillin. This inert product, however, is readily activated by the addition of rat kidney extract, rat serum or guinea pig serum, presumably as a result of enzyme action. One half of the bound penicillin is apparently set free as a result of hydrolytic cleavage.² Assuming that a similar hydrolytic regeneration takes place in the animal body, the predictable therapeutic potency of benzyl penicillin would be much greater than that suggested by its low *in vitro* titer. Benzyl penicillin dissolved in a vegetable oil and injected subcutaneously, or given by mouth, was titrated therapeutically on mice inoculated intraperitoneally with multilethal doses of streptococci or pneumococci. Control titers were made with ordinary penicillin. The data thus far obtained show that, when injected subcutaneously, benzyl penicillin has at least three times the therapeutic potency of sodium penicillin. When taken by mouth the therapeutic potency is approximately five times that of sodium penicillin. Given orally, it has substantially the same therapeutic effect as an equivalent weight of sodium penicillin injected subcutaneously. Benzyl penicillin is now being tested on a large scale in clinical cases, and the results will be awaited with much clinical interest.³

1. Cavallito, C. J.; Kirchner, F. K.; Miller, L. C.; Bailey, J. H.; Klimck, J. W.; Warner, W. F.; Suter, C. M., and Tainter, M. L.: *Science* **102**:150 (Aug. 10) 1945.

2. Hickey, R. J.: *Science* **101**:462 (May 4) 1945.

3. Gamble, T. O.; Miller, L. C., and Tainter, M. L.: *Am. J. Obst. & Gynec.*, to be published.

MEDICINE AND THE WAR

ARMY

SPECIAL COMMITTEE TO ETO REPORTS ON COMBAT FATIGUE

A recent announcement by the War Department indicates that approximately 90 per cent of the men overcome by combat exhaustion in the European Theater of Operations prior to the collapse of Germany returned to duty as a result of prompt and skilled handling. This announcement was based on a report made by a commission of civilian psychiatrists appointed by the Office of Scientific Research and Development at the suggestion of the Surgeon General of the Army.

In summarizing the observations of the committee, it was stated that army psychiatrists had displayed great courage and ingenuity and had made some notable accomplishments. High quality of personnel, better methods and technics and the fact that psychiatrists are getting to their patients more rapidly are some of the reasons why combat fatigue was treated more successfully in his war than shell shock was in the last war.

The report stresses the fact that the presence of combat exhaustion is no indication of lack of courage. It points conclusively to the fact that soldiers do reach the point at which their systems can undergo no more.

The commission was composed of Dr. John C. Whitehorn, chief psychiatrist, Johns Hopkins University School of Medicine; Dr. John Romano, professor of psychiatry, University of Cincinnati College of Medicine; Dr. Lawrence S. Kubie, associate in neurology, Columbia University College of Physicians and Surgeons, New York; Dr. Karl Menninger, director, Menninger Clinic, Topeka, Kan., and Dr. Leo H. Bartemeir, professor of psychiatry, Wayne University College of Medicine, Detroit.

MEDICAL CORPSMAN AWARDED MEDAL OF HONOR

For his conspicuous gallantry in administering aid to the fallen men of his company at Okinawa and at the same time killing six of the enemy though he was seriously wounded, Robert Eugene Bush, hospital apprentice first class, was recently awarded the Medal of Honor. The citation accompanying the award explained that it was given to Bush "for conspicuous gallantry and intrepidity at the risk of his life above and beyond the call of duty while serving as medical corpsman with a rifle company, 2d Battalion, 5th Marines, 1st Marine Division, in action against enemy Japanese forces on Okinawa Jima, Ryuku Islands, May 2, 1945. Fearlessly braving the fury of artillery, mortar and machine gun fire from strongly entrenched hostile positions, Bush constantly and unhesitatingly moved from one casualty to another to attend the wounded falling under the enemy's murderous barrages. As the attack passed over a ridge top, Bush was advancing to administer blood plasma to a marine officer lying wounded on the skyline when the Japanese launched a savage counterattack. In this perilously exposed position he resolutely maintained the flow of life giving plasma. With the bottle held high in one hand, Bush drew his pistol with the other and fired into the enemy's ranks until his ammunition was expended. Quickly seizing a discarded carbine, he trained his fire on the Japanese charging point blank over the hill, accounting for six of the enemy despite his own serious wounds and the loss of one eye suffered during his desperate battle in defense of the helpless man. With the hostile force finally routed, he calmly disregarded his own critical condition to complete his mission, valiantly refusing medical treatment for himself until his officer had been evacuated and collapsing only after attempting to walk to the battle aid station. His daring initiative, great personal valor and heroic spirit of self sacrifice in service for others reflect great credit on Bush and enhance the finest traditions of the United States Naval Service."

ARMY AWARDS AND COMMENDATIONS

Colonel Charles Langdon Parsons

In recognition of his work in maxillofacial surgery, Lieut. Col. Charles Langdon Parsons, formerly of Boston, was recently awarded the Legion of Merit. As chief of surgical services of a station hospital, Colonel Parsons was credited with initiating, conducting and concluding the work of the maxillofacial clinic of his hospital. Describing his exceptionally meritorious efforts to relieve facial suffering and disfigurement due to battle wounds, the official citation stated that, owing to the high patient census of the surgical service consisting mainly of battle casualties from the Anzio beach-head and the main Italian front, Colonel Parsons' clinic performed most of this highly specialized type of operation for the entire Mediterranean theater. During the period April 1, 1944 to April 1, 1945 the facilities of the unit were taxed to the utmost by the delicate care that each patient required and by the fact that the influx of seriously wounded men almost doubled the normal capacity of the hospital. By working tirelessly for long hours, Colonel Parsons, in addition to his normal duties and in conjunction with his superior surgical ability, compiled an exhaustive history of the experiences of the maxillofacial clinic. Dr. Parsons graduated from Harvard Medical School, Boston, in 1927 and entered the service May 15, 1942.

Captain Cecil J. Hawes

The Bronze Star was recently awarded to Capt. Cecil J. Hawes, formerly of Conway, S. C. According to the citation "While a prisoner of war at Stalag IIA, New Brandenburg, Germany, from January to April 1945, he voluntarily remained at this prison camp to give medical aid to over 800 American and British enlisted men rather than accompany other officers to an officers' camp. Although it was a constant struggle with the German authorities to secure medical equipment, medicines and assistance, he was able to improve greatly the lot of the American and British sick through his untiring efforts, foresight and medical skill. He labored day and night to save the seriously ill and to comfort those in pain. He performed operations under the most difficult conditions and with poor equipment. His cheerful and encouraging attitude was always a morale factor of greatest importance. His exceptionally meritorious achievement was in line with the finest traditions of the medical service and a great credit to himself and the Army." Dr. Hawes graduated from Vanderbilt University School of Medicine, Nashville, Tenn., in 1942 and entered the service July 3, 1943.

Captain John J. Shurtz

Capt. John J. Shurtz, formerly of Eldora, Iowa, was recently awarded the Bronze Star. The citation stated that "he was on assigned duty as surgeon on a United States Army transport when it was torpedoed on Nov. 11, 1943. He remained on board after the order to abandon ship had been given, continued to care for the wounded and supervised their transfer to the rescue ship. Finding insufficient medical and surgical supplies, he obtained a small boat, returned to his transport and, with complete disregard for his own safety and the risks involved, boarded the sinking vessel and went below to obtain the additional supplies. Returning to the rescue ship, he administered medical aid and performed countless surgical operations throughout the night and during the following day. The courage, fortitude and persistence shown by him in the care of patients under adverse and hazardous conditions on an overloaded ship reflect great credit on himself and on the military service." Dr. Shurtz graduated from the State University of Iowa College of Medicine in 1941 and entered the service Sept. 12, 1942.

Major Vance J. Elliott

Major Vance J. Elliott, formerly of Knoxville, Iowa, was recently awarded the Bronze Star "for meritorious services from March 1944 to May 1945 as group surgeon of a heavy bombardment group. Major Elliott has, through diligent and untiring effort, been successful in administering the station hospital so that, from the first, it has been considered a model of its kind, and he has consistently maintained one of the lowest noneffective rates of flying personnel and has been a contributing factor in the combat efficiency of his group. Major Elliott designed a collapsible evacuation airplane litter that enjoyed immediate success and has been instrumental in saving the lives of many men. Major Elliott has shown outstanding ability as a leader and has considerably contributed to the morale of his group and to the medical operations of the Army Air Forces." Dr. Elliott graduated from the State University of Iowa College of Medicine, Iowa City, in 1939 and entered the service Jan. 29, 1941.

Lieutenant Colonel R. Robert Cohen

Lieut. Col. Reuben Robert Cohen, formerly of Havre De Grace, Md., was recently awarded the Legion of Merit for "services from May 1943 to August 1944 at the Army Service Forces Training Center (Ordnance), Aberdeen Proving Ground, Maryland. During that period by his untiring efforts, initiative and superior intelligence he developed a unique and original training program in the field of psychiatry to speed up the mental and emotional transition of enlisted men from civilians into soldiers. The program evolved and put into

operation in all the ordnance training centers was done entirely outside normal duty functions and has resulted in better morale, a reduction in sick call and hospitalization, a saving of training time and the creation of a greater number of well balanced soldiers. His ingenuity, tremendous drive and understanding of human nature have been vital factors in the production of excellent ordnance soldiers, and his work is contributing materially to the success of the war effort." Dr. Cohen graduated from the University of Pittsburgh School of Medicine in 1932 and entered the service April 10, 1941.

DENTAL CORPS OFFICER CITED

Capt. Claude P. Daniel, Dental Corps, formerly of Bogalusa, La., was recently awarded the Bronze Star. The citation read "While a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945, he performed services as chief of dental service and practicing dentist in a general hospital. With improvised makeshift equipment and depleted medical supplies, he labored against great odds and on a starvation diet. At the demand of the Japanese administration he gave dental care to the enemy garrison. His excellent work and the manner in which he performed it were important factors in maintaining endurable associations with the Japanese captors. His continued cheerfulness in the face of arduous and hazardous duties and his unusual accomplishments despite limited facilities were an inspiration to his fellow prisoners of war."

MISCELLANEOUS**INFORMATION WANTED ABOUT
DISCHARGED OFFICERS**

The Directory Department and the Bureau of Information of the American Medical Association are very anxious to obtain the names and present addresses of all physicians who have been released from the armed forces and also the date on which their military service terminated.

These names will be listed in *THE JOURNAL* and in the *Directory Report Service*. Many inquiries are being received daily from physicians who are trying to locate either former colleagues or medical officers whom they met while in military service.

If you know of any physicians who have recently been released from the armed forces, please urge them to send the following information to the Directory Department, American Medical Association, Chicago 10:

1. Full name.
2. Date on which military service terminated.
3. Present address (residence and office).
4. Indicate whether in practice, retired or not in practice.
5. Former permanent address (if different from item 3).

**TRANSFER OF PROCUREMENT AND
ASSIGNMENT SERVICE**

A recent release from the central office of the Procurement and Assignment Service states, in part, that "the functions of the Procurement and Assignment Service of the War Manpower Commission and the functions of the chairman of the War Manpower Commission with respect thereto are hereby transferred to the Federal Security Administrator. There shall be transferred to the Federal Security Agency, for use in connection with such functions, all of the personnel of the Procurement and Assignment Service and so much of the other personnel of the War Manpower Commission and so much of the records, property and funds of the War Manpower Commission as the director of the Bureau of the Budget shall determine to relate primarily to the Procurement and Assignment Service." This transfer was to be effective October 20, at which time Federal Security Agency transportation request blanks were to be used instead of those issued by the War Manpower Commission.

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

California

U. S. Naval Hospital, San Diego: Dysenteries: The Differentiation Between the Protozoal and Bacillary Dysenteries, Dr. John F. Kessel, November 1.

U. S. Naval Air Training Station, San Diego: Recent Developments in Diabetes, Dr. James Sherrill, November 2; Problems in Urology, Lieutenant Commander Rusche.

A. A. F. Regional and Convalescent Hospital, Santa Ana: Tuberculosis Problems, Comdr. W. L. Rogers and Comdr. A. W. Hobby, November 6; The Use of Products of Fibrinogen and Thrombin in Otolaryngology, Capt. Harry P. Schenck, November 20.

Camp Cook Station Hospital, Lompoc: Some Dynamics of Military Neuropsychiatry, Major Alex Blumstein, November 7; Cardiac Emergencies, Lieut. Comdr. Sylvester McGinn, November 21.

Hoff General Hospital, Santa Barbara: Some Dynamics of Military Neuropsychiatry, Major Alex Blumstein, November 7; Cardiac Emergencies, Lieut. Comdr. Sylvester McGinn, November 21.

U. S. Naval Hospital, Corona: Neuropsychiatry, Lieutenant Commander Nichols, November 8; Tumor Pathology, Dr. Edward Butt, November 22.

U. S. Naval Hospital, Santa Margarita Ranch, Oceanside: The Cancer Problem in the Service Personnel, Lieut. J. S. Binkley, November 8; Modern Concepts of Leprosy, Dr. Maximilian Obermayer, November 22.

Torrey General Hospital, Palm Springs: Psychosomatic Medicine, Major Milton Miller, November 6; Headache, Capt. Oscar Sugar, November 6; Peptic Ulcer, Dr. William Poeck, November 20.

A. S. F. Regional Hospital, Camp Haan: Cardiac Emergencies, Lieut. Comdr. Sylvester McGinn, November 6.

Letterman General Hospital, San Francisco: Uremia Following Urologic Surgery, Dr. Donald Smith, November 3.

Station Hospital, Camp Roberts: The Fundamentals of Endocrine Diagnosis, Dr. Roberto F. Escamilla, November 10.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Name	Rank	Address	Name	Rank	Address
Arizona			Pennsylvania		
Fillmore, Angus J., Major, 34 N. MacDonald, Mesa.			Barnard, J. H., Major, 162 Center Ave., Emsworth, Bellevue.		
Hilker, Marcus D., Capt., St. Joseph's Hospital, Phoenix.			Berger, Emanuel, Capt., 4911 2d Ave., Pittsburgh.		
Jones, William A., Capt., Whiteriver.			Boylan, Joseph T., Major, 13 S. Church St., Carbondale.		
McCune, Robert Jr., 1st Lt., Box 334, Ft. Defiance.			Cochran, H. A. J., Capt., 402 Chester Ave., N.W., Pittsburgh.		
Merrill, Marriner W., Capt., 41 W. Vernon Ave., Phoenix.			Collins, Clyde A., Capt., 909 Columbia St., Scranton.		
Colorado			Dines, George L., Major, R. F. D. 1, Corapolis.		
Goldman, Harold I., Major, 1755 Ivanhoe St., Denver.			D'Zmura, Constantine E., Major, Dixonville.		
Kallay, Stephen L., Capt., 1092 Garrison, Lakewood.			Falker, John M., Lt. Col., 222 S. Hickory St., Mt. Carmel.		
Lamberson, Harry H., Capt., 344 1st Natl. Bank, Colo. Springs.			Ferkany, J. E., Major, 509 Russellwood Ave., McKees Rocks.		
Lorber, Milton B., Capt., 1612 Tremont Place., Denver.			Gilardi, R. J., Capt., 2975 Belrose Ave., Dormont, Pittsburgh.		
Lyday, Joseph H., Major, 415 Dexter St., Denver.			Green, Arthur H. Jr., Major, 115 N. Main Ave., Scranton.		
Lyons, Mason R., 1st Lt., 1533 Konthia St., Denver.			Haber, Richard E., Lt. Col., 1710 Wightman St., Pittsburgh.		
Mechler, Emmett A., Major, 1960 Glencoe St., Denver.			Hanes, W. J., Major, Hill & Old Eagle School Rds., Strafford.		
Min, Henry M., Capt., Fairplay.			Krausz, Martin R., Lt. Col., 5215 Sylvester St., Philadelphia.		
Nicks, Frank I., Major, P. O. Box 541, Manitou Springs.			Larkin, Francis L., Major, Uniontown.		
Reynolds, Francis H., Major, 144 Race St., Denver.			O'Connor, Arthur J., Major, 18 Conewonge Ave., Warren.		
Zarit, John I., Major, 829 Fillmore St., Denver.			Odley, Ralph L., Capt., 161 5th St., Renovo.		
Delaware			Patterson, G. W., Lt. Col., 622 Baldrige Ave., N. Braddock.		
Gross, Benjamin A., Major, 1503 W. 13th St., Wilmington.			Place, Elmer R., Major, Skippack.		
Munson, Charles L., Major, 1201 Shallcross Ave., Wilmington.			Pohl, Charles M., Major, 210 W. High St., Manheim.		
Reardon, William T., Capt., 207 W. 29th St., Wilmington.			Popielarski, Joseph T., Capt., 440 Bush St., Bridgeport.		
Sortman, Harold P., Capt., 2327 Jessup St., Wilmington.			Postlethwait, Raymond W., Capt., Palmerton Hosp., Palmerton.		
Walker, George L., Capt., 506 W. 6th St., Wilmington.			Ralston, Emerald M., Capt., 226 W. 8th St., Eric.		
Warren, R. O. Y., Lt. Col., 1403 Delaware Ave., Wilmington.			Savage, Lester W., Capt., 140 Hansberry St., Germantown.		
Idaho			Shepler, Joseph R., Major, West Newton.		
Flint, Weldon C., 1st Lt., Cottonwood.			Smith, Walter M., Capt., S. Main St., Richlandtown.		
Forney, Richard A., Major, 1001 N. 16th St., Boise.			Sneddon, John Jr., Capt., 111 Frederick St., Hanover.		
Gudmundsen, Max D., Capt., 717 N. 19th St., Boise.			Spahr, Richard R., Col., 19 S. Market St., Mechanicsburg.		
Haury, Paul G., Capt., 308 Prospect Ave., Lewiston.			Timney, Thomas E., Capt., 813 Elk St., Franklin.		
McRoberts, Donald D., 1st Lt., 712 Ninth Ave., Lewiston.			Trees, Donald P., Capt., 213 S. 41st St., Philadelphia.		
Mellor, Wendell J., Capt., 492 L St., Idaho Falls.			Tropea, Frank Jr., Major, 5323 N. Carlisle St., Philadelphia.		
Pierce, Wallace H., Major, Cottonwood.			Vander Veer, Joseph B., Col., 302 S. 19th St., Philadelphia.		
Steele, John G., Major, 2515 Ellis St., Boise.			Ward, George H., 1st Lt., 220 Locust St., Wilson Clairton.		
Kentucky			Washko, Peter J., 1st Lt., 99 Short St., Edwadsville.		
Albritton, James E., Capt., Hopkinsville.			Wirts, Carl A., Major, 812 Cedar Ave., Pittsburgh.		
Asman, Henry B., Major, 1908 Rutherford Ave., Louisville.			Wong, James S. F., Capt., 1316 N. 6th St., Philadelphia.		
Blount, Rankin C., Major, 302 Security Trust Bldg., Lexington.			Woodhouse, S. L. Jr., Major, 4647 Oakland St., Philadelphia.		
Bryant, Charles G., Capt., 923 Eastern Parkway, Louisville.			South Carolina		
Dent, Paul L., Major, 551 Garden Drive, Louisville.			Brown, Alton G., Major, Med. Coll. of S. C., Charleston.		
Griswold, R. A., Col., Box 437, Blankenbaker Lane, Louisville.			Jamison, Andrew M. Jr., Major, 257 E. Main St., Spartansburg.		
Hagan, James E., Capt., Hazard.			Oliver, Benjamin M. Jr., Capt., S. C. Tub. Sanat., State Park.		
Haizlip, James O., Capt., 143 N. Ft. Thomas Ave., Ft. Thomas.			Sherrill, Sion F., Major, 514 State St., Belle Fourche.		
Hunter, S. B., Jr., Major, % Good Samaritan Hosp., Lexington.			Thackston, L. P., Lt. Col., 154 N. Broughton St., Orangeburg.		
Ines, Pat R., Major, 2713 Lexington Rd., Louisville.			Thomas, John P. Jr., Capt., 334 Vernon St., Gaffney.		
Mack, John K., Lt. Col., 522 Wataga Dr., Louisville.			Texas		
Marquardt, Carl A., Capt., 310 Main St., Augusta.			Adams, Clinton E., Lt. Col., 3401 S. 11th St., Abilene.		
Smith, Keith Perkins, Capt., 109 Center St., Corbin.			Adam, George F., Capt., 3225 Blinz St., Houston.		
Smith, Tom J., Major, 45 Lyndale Rd., Route 5, Covington.			Allen, George S., Lt. Col., Shepherd Allen Hosp., Burnet.		
Townes, Charles D., Lt. Col., Route 1, Buechel.			Allen, Platt L., Major, Weatherford.		
Troutman, Woodford B., Lt. Col., 2101 Lowell Ave., Louisville.			Barkley, Howard T., Lt. Col., Box 904 A., Route 5, Houston.		
Walsh, John T., Capt., LeGrange.			Barta, Chester K., Major, St. Paul's Hospital, Dallas.		
Welch, Ernest A., Capt., 320 Hart Rd., Lexington.			Burnett, Mathew D. Jr., Major, 411 Sycamore St., Brenham.		
Wilt, Frederick W., Major, 321 N. Broadway, Georgetown.			Carrithers, Clem M., Capt., Bruni, Webb County.		
Zimmerman, Leo W., Major, 1902 Lowell Ave., Louisville.			Carter, Christopher B., Lt. Col., Dallas Country Club, Dallas.		
Maryland			Cochran, Joel L., Lt. Col., 314 Club Dr., San Antonio.		
Garlick, William L., Major, 816 N. Eutaw St., Baltimore.			Gentry, Thomas C., Lt. Col., DeLeon.		
Long, Perrin H., Col., 307 Thornhill Rd., Baltimore.			Gonzalez, Juan C. Jr., Major, Benavides.		
Silverton, George, Capt., 827 Light St., Baltimore.			Moore, Masters H., Major, 1400 Wall St., Tyler.		
Winkenwerder, Walter L., Lt. Col., 1014 St. Paul St., Baltimore.			Nicosia, Ralph V., Major, 407 Westmoreland St., Houston.		
Nebraska			Oliver, Thomas M., Major, 900 Austin Ave., Waco.		
Mack, Marvin A., Lt. Col., 1212 Ivy St., Crete.			Patillo, Albert D. Jr., Major, Box 300, Wichita Falls.		
Norall, Victor D., Major, Lexington.			Pecora, Tony L., Major, 620 Goddard Bldg., Beaumont.		
Steinberg, Maurice M., Lt. Col., 111 S. 34th St., Omaha.			Perez, Alfred, 1st Lt., 130 Goodwin Ave., San Antonio.		
Oklahoma			Peyton, John B., Major, 1421 Medical Arts Bldg., Dallas.		
Bolton, Vernon L., Col., 800 N. E. 13th St., Oklahoma City.			Prather, Frank A., Capt., Runge.		
Davis, Thomas H., Lt. Col., 404 Med. Arts Bldg., Tulsa.			Rhea, Robert L. Jr., Major, 414 Navarro St., San Antonio.		
Parker, Warren E., Capt., Davis.			Sebastian, Festus J., Major, 4133 Hawthorne St., Dallas.		
Sancor, Fenton A., Col., 332 Key Bldg., Oklahoma City.			Shaddock, Carroll B. Jr., Major, 1507 "C," Beaumont.		
Taylor, Lloyd W., Lt. Col., 514 E. Brown St., Hugo.			Shelton, Elvin L. Jr., Major, John Sealy Hosp., Galveston.		
			Smith, John M., Capt., Port Neches (Gen. Del.).		
			Steele, Virgil S., Capt., 155 Harrison Ave., San Antonio.		
			Sutton, Robert S., Major, 710 W. Kirk Pl., San Antonio.		
			Tandy, Hugh B., Major, Box 538, Ozona.		
			Whitsitt, James J., Major, 4824 La. Branch, Houston.		
			Zink, Linus A., Major, Pecos.		

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion. The Report of the Secretary, additional sections of the Report of the Board of Trustees and reports of some councils, bureaus and departments will appear in subsequent issues of The Journal.—Ed.

(Continued from page 465)

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following report of the Secretary is respectfully submitted:

MEMBERSHIP

At the close of the year 1944 the names of 124,595 members were enrolled. Deaths of members accounted for the removal of 1,952 names from the official list. The enrolment as of Dec. 31, 1943 was 123,586. The gain in membership in 1944 was 1,009.

In practically all instances component societies and constituent associations have retained on their membership rolls the names of members assigned to active duty with the military forces, and those names have also been retained on the official membership list of the American Medical Association. As of Oct. 1, 1945 the number of members enrolled was 126,024 as compared with 125,637 on the same date in 1944.

FELLOWSHIP

The Fellowship roster carried 68,637 names on Dec. 31, 1944 as compared with 70,269 on the same date in 1943. Deaths of Fellows in 1944 numbered 950. The names of 165 Fellows were removed from the roster because of ineligibility, and 412 were dropped because of lapses in the payment of dues. The decrease in the number of Fellows was most largely due to the fact that thousands of Fellows were serving with the military forces in all parts of the world. The Secretary respectfully suggests that the House of Delegates authorize the restoration of the names of all Fellows assigned to active duty on their own request.

The usual table, entitled "Organization of Constituent State and Territorial Medical Associations," is included in this report.

ACTIVITIES OF COMPONENT SOCIETIES AND
CONSTITUENT ASSOCIATIONS

Conditions created by the great war have imposed new and heavy responsibilities and duties on the medical profession of our nation. Thousands of physicians have voluntarily accepted assignment to active duty with the military forces, and the record clearly shows that they have acquitted themselves with great credit. They have served in all parts of the earth and have won the acclaim of commanding officers and men in the ranks in all war theaters.

The depletion in the ranks of physicians available for service to the civilian population has imposed great burdens on those left at home, and they too have served with great credit.

The long continued absence of many of their members and the great demands made on the time and effort of those who were not called for war service have created new problems for our societies. Even so, most of them have carried on earnestly and effectively, though reports indicate that some county societies have found it difficult to continue their activities.

In spite of unusual and difficult conditions growing out of the war, many component societies and most, if not all, of the constituent associations have actually performed in splendid fashion in that they have dealt effectively with many of the problems of the times and in some instances have actually extended their activities in the interest of medicine and in the public interest.

Organization of Constituent State and Territorial
Medical Associations, April 1, 1944

	Number of Counties in State	Number of Com- ponent Societies in State	No. of Physi- cians in State Not Organized 17th Ed. A. M.		No. of Members of State Associations		Number of Fellows in State 1945
			1944	1945	1944	1945	
Alabama.....	67	67	..	..	2,123	1,560	1,639
Arizona.....	11	13	1	1	615	390	407
Arkansas.....	75	68	0	0	1,866	1,098	1,110
California.....	58	49	10	9	12,365	7,550	7,800
Colorado.....	63	27	1	1	1,886	1,175	1,180
Connecticut.....	5	8	..	..	2,720	2,011	2,039
Delaware.....	3	3	..	..	360	213	243
District of Columbia.....	..	..	..	..	4,510	..	..
Florida.....	67	31	16	16	2,391	1,120	1,418
Georgia.....	159	92	37	37	2,811	2,011	2,066
Idaho.....	44	9	..	..	416	310	312
Illinois.....	162	92	6	6	12,613	8,623	8,641
Indiana.....	92	83	1	1	4,165	3,397	3,401
Iowa.....	99	97	..	..	3,102	2,407	2,386
Kansas.....	105	72	16	16	2,019	1,687	1,182
Kentucky.....	120	112	4	4	2,717	1,010	1,000
Louisiana.....	64	42	15	15	2,601	1,567	1,535
Maine.....	16	15	..	..	1,011	757	755
Maryland.....	23	23	..	..	3,085	1,635	1,710
Massachusetts.....	14	18	..	..	8,085	5,628	5,631
Michigan.....	83	65	..	..	6,559	4,567	4,520
Minnesota.....	87	34	1	1	3,011	2,916	3,056
Mississippi.....	82	21	3	3	1,525	923	918
Missouri.....	111	78	8	7	5,183	3,252	3,308
Montana.....	56	17	22	22	556	453	413
Nebraska.....	93	50	16	16	1,637	1,110	1,105
Nevada.....	17	5	12	12	174	111	133
New Hampshire.....	10	10	..	..	687	510	527
New Jersey.....	21	21	..	..	6,088	4,204	4,318
New Mexico.....	31	14	17	17	417	268	313
New York.....	62	61	1	1	27,038	16,038	10,192
North Carolina.....	100	67	21	21	2,871	1,912	2,600
North Dakota.....	53	13	11	11	620	399	390
Ohio.....	88	87	1	1	9,400	6,752	6,869
Oklahoma.....	77	63	6	6	2,284	1,193	1,197
Oregon.....	36	28	1	1	1,193	932	1,100
Pennsylvania.....	67	60	5	5	13,593	9,051	9,761
Rhode Island.....	5	6	1	1	958	755	783
South Carolina.....	46	37	4	4	1,127	911	915
South Dakota.....	69	12	1	1	1,993	311	310
Tennessee.....	95	53	21	21	2,801	1,815	1,755
Texas.....	251	120	..	..	6,952	4,607	4,729
Utah.....	29	0	4	4	585	505	611
Vermont.....	14	10	3	3	551	378	377
Virginia.....	100	52	8	8	2,920	1,868	1,915
Washington.....	39	24	13	13	2,234	1,644	1,650
West Virginia.....	55	29	5	5	1,841	1,352	1,358
Wisconsin.....	71	62	..	..	3,551	2,627	2,603
Wyoming.....	21	11	11	11	261	190	189
Alaska.....	..	..	..	..	70	37	38
Hawaii.....	5	4	1	1	395	315	318
Isthmian Canal Zone.....	..	..	..	..	181	250	138
Philippine Islands.....	76	28	28	28	4,209	1,217	1,217
Puerto Rico.....	7	7	..	..	526	470	477
Foreign.....	..	..	..	..	17	.....	.....
Total.....	3,139	2,053	317	315	185,903	121,452	125,302
Commissioned medical officers.....	..	..	..	..	..	..	4,506
							68,665

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Proposed amendments to the Constitution and By-Laws submitted to the House of Delegates at its last meeting by Dr. C. B. Conklin, delegate of the Medical Society of the District of Columbia, and Dr. A. W. Adson, delegate of the Minnesota State Medical Association, were referred to the Board of Trustees and will no doubt be reported on by that body.

MEMORIALS AND RESOLUTIONS

The Secretary has received copies of several resolutions adopted by official bodies of constituent associations, but it is his understanding that they are to be submitted by delegates representing the constituent associations concerned.

APPRECIATION

Again the Secretary humbly but gratefully extends an expression of his appreciation of the kindly and helpful consideration and aid received from all of the officers and members of official bodies of the Association and many of those concerned with the affairs of its component and constituent societies. In this connection he would offer high commendation for the devoted service of the directing head of every Council, Bureau and Department and the supporting personnel in all offices.

Respectfully submitted.

OLIN WEST, Secretary.

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

During the past year two meetings of the Judicial Council were held in Chicago, one on Dec. 1, 1944 and the other on June 19, 1945. These, in addition to the meetings which were held in conjunction with the meeting of the House of Delegates in June, were sufficient to take care of the routine business and other matters referred to the Council.

The items on the agenda for consideration at the Council meetings were:

1. Applications for Fellowship in the American Medical Association which were questioned because of information contained in the biographic files of the American Medical Association.

2. The proposed amendments to the Constitution and By-Laws which were referred to the Council by the Board of Trustees. These amendments were introduced in the House of Delegates at its meeting in June 1944 and referred to the Board of Trustees, which, in turn, referred them to the Judicial Council. They concerned membership in the American Medical Association and consequently were considered by the Council. Reports were completed on two of the proposed amendments, the third being delayed temporarily because of the inability of the Council to secure a copy of the constitution and by-laws of the constituent society concerned.

3. There were many questions in regard to unethical advertising inquiries on the ethical relationship of doctors with hospitals and government agencies operating medical services and questions from physicians as to their right of appeal from decisions of constituent associations. Other questions on the same subjects were answered either by correspondence with headquarters or the Chairman of the Council or by personal interview with one of its members.

PROFESSIONAL RELATIONS

The members of the profession, however, are more disturbed by some doubts as to the ethical principles governing relationship between doctors and members of the various cults. Many requests were for information regarding this relationship. It seems strange that such a condition still exists, for in the reports of the Judicial Council in 1936 and 1938 a considerable portion of the reports was devoted to this matter. The increased privileges which have been granted to the cults in some of the states have made this a matter of great importance

to our members and to the public. As an accurate understanding of the principles involved is so necessary for the ethical practice of our profession, we are taking the liberty of quoting the decision rendered and reported in 1936:

There are several general ethical principles underlying cult practice in its relation to medical practice as carried out by doctors of medicine. Primarily the basis for an ethical code is the well being of the people at large, who are dependent on the profession of medicine for their health. The profession of medicine is the custodian of the accumulated knowledge in medicine and should use it for the benefit of humanity. This knowledge, technical in nature and developed by experience, can be interpreted to the body of the people only by persons educated to understand it and trained to apply it. Of all those professing to heal the sick only the doctor of medicine has sufficient education and training to make use of the information already accumulated and keep abreast of that being developed continuously. We grant that even though this is true no one is compelled to choose only from this group in selecting his medical attendants. The individual may elect to receive his medical care from himself, his neighbor, osteopathy, chiropractic, naturopathy or Christian science, but he is not entitled while under the care of such irregulars to demand that the man educated in scientific medicine furnish opinion and advice to one so far deficient in education that he cannot so understand and apply that opinion and advice as to be able to make satisfactory use of it. Such degrading consultation would cheat the patient out of that which he might expect and the subsequent failure of results bring discredit on the science of medicine. If this is true of the occasional individual consultation, how much greater it must be in the case of repeated or continual miscegenation!

The Judicial Council is in receipt of much correspondence attempting to justify if not to advocate consultations between doctors of medicine and chiropractors, osteopaths, Christian scientists and other cultists and irregular practitioners; also appearance before their societies, teaching in their schools, and their admittance to hospital practice on a parity with the medical profession. The universal argument for all the procedures mentioned is based on the false premise "to work them gradually into regular medicine." One of our principles of ethics is as follows. "The obligation assumed on entering the profession . . . demands that the physician use every honorable means to uphold the dignity and honor of his vocation, to exalt its standards and to extend its sphere of usefulness." Such specious argument as mentioned above seems to the Council to lack substance and be unreal. It seems impossible that knowledge gained through years of scientific laboratory work and teaching can be assimilated by those of less preliminary training and use of scientific methods of investigation and practice ever to fit them to enter a profession the dignity and honor of which, the standards and sphere of influence of which, we are obligated to uphold, exalt and extend for the service the profession can render to humanity. We further are of the opinion that it is just as impractical to suggest that the small percentage of cult practitioners will through close relationship with the membership of our profession be raised to our professional standards as it is to expect the few rot speckled apples in the apple barrel to become whole because of the preponderance of sound ones. We believe in continuous, complete separation between the true and the specious physician. Our traditional responsibility for the dissemination of sound scientific treatment for the people and for protection against the insidious influence of the weaker among our own is ever present. If and when the time comes that government through legislation places the cultist on the same legal plane with us, we must strive to maintain the aristocracy of learning and culture. A physical and professional separation as complete as is possible should be established and maintained.

The Judicial Council, having jurisdiction on all questions of ethics, is very much impressed by the lack of knowledge of the Principles of Medical Ethics of the American Medical Association by a great many members of the medical profession. It also notes with regret that there is too little instruction or explanation of these principles given during the students' course in the medical schools. Some medical schools include medical ethics in their courses of instruction, while others may have one or two lectures on the subject during the college year, but this does not accomplish proper indoctrination into the traditions of our profession. The importance of this condition is augmented greatly by the fact that between 7,000 and 8,000 graduates have been inducted into the military forces at the end of a nine month internship immediately following graduation. These men have had but little, if any, information regarding the Principles of Medical Ethics of the American Medical Association or the rules of conduct of a constituent association of a state in which they may locate after release from military service. In time of peace, this condition would be somewhat corrected by association during their internship with men serving on the visiting staffs of hospitals and by attending meetings of the local component society where the rules of conduct are often discussed and the practical applica-

tion of the Principles of Medical Ethics and rules of conduct are demonstrated. It is conceivable that the professional success of a young doctor may often be handicapped by the injudicious or unwise violation of these principles, thus proving a severe handicap for him to overcome. A great number of medical military officers will be released in the near future who may have little knowledge or understanding of our Principles of Medical Ethics. Therefore it would seem wise for the various state associations to inaugurate and encourage a course of instruction on the Principles of Medical Ethics and the rules of conduct, given either under the auspices of the state association or by its component societies. This, we feel quite certain, is as necessary to the doctor's ultimate and complete attainment of his aims as are any of the other plans for a continued postwar graduate course.

DETERMINATION OF POLICIES

It is quite evident that a certain weakness in our organization is due to a lack of understanding of the manner in which our Association functions in determining its policies. This condition is found to exist among members of practically every component society. It seems to us that it would be well worth while to develop some program by which one, when admitted to membership, would be indoctrinated in medical affairs. This would consist not only in the teaching of the Principles of Medical Ethics of the American Medical Association and the rules of conduct of the constituent associations but also of the manner in which the American Medical Association functions, beginning with the component society's relationship to the constituent association and its relationship to the parent association and describing in detail the manner in which matters developed in the component societies are brought to the state associations and thence to the national House of Delegates to become finally a policy of the organization. The democracy of the American Medical Association should be stressed emphatically and the fact that the policies are adopted only by the action of the House of Delegates. A complete description of the structure and procedure of the American Medical Association should be taught. Perhaps this might be accomplished by the publication of a pamphlet with a graph to show the structure and some illustrated cases of procedure to make the matter more readily understood.

DR. GEORGE EDWARD FOLLANSBEE

It is with profound sorrow we note the death on Jan. 1, 1945 of our late member, Dr. George Edward Follansbee. Associated with the Judicial Council for twenty years and serving as its Chairman for sixteen of them, Dr. Follansbee won the affection and respect of its members. His fine, judicial mind, years of experience and knowledge of the policies and traditions of our Association made him an invaluable member. He was admired, respected and loved not only for his tolerance, kindness and patience toward those presenting their problems before the Council but also for his uncompromising attitude toward any proposed action which might tend to lower the standards, ideals or dignity of the medical profession. His ability to write opinions lucidly and succinctly was cause for favorable comment on many occasions. His activities were constantly directed toward maintaining the ideals of our Association, exalting the dignity of the medical profession and increasing its respect among the general public. Dr. Follansbee's many years of unrelenting service in the interest of the American Medical Association makes his death a great loss to the entire profession but in particular to the Council, where we miss his sage advice and well balanced judgment. To us the place left vacant by his death will never be completely filled.

Respectfully submitted.

EDWARD R. CUNIFFE, Chairman.
WALTER F. DONALDSON.
LLOYD NOLAND.
JOHN H. O'SHEA.

REPORT OF THE BOARD OF TRUSTEES

Council on Physical Medicine

At the 1944 annual session of the House of Delegates a name of the Council on Physical Therapy, so called during the nineteen years of its existence, was changed, by action of the House on recommendation of the Council and the Board of Trustees, to the Council on Physical Medicine. The change was felt to be desirable since physical agents coming under the scope of the Council's work include diagnosis as well as therapy and because the Council has for some time interested itself in occupational therapy, which is a branch of the broad field of physical medicine, and for other reasons.

With its new name the Council on Physical Medicine will continue as it has always functioned but will devote additional attention to problems coming under the broader scope.

The restrictions placed on raw materials due to the need for war continued through 1944. Development of some new therapeutic and diagnostic equipment was limited. New equipment developed remained secret to the Army and Navy service and practically no new apparatus was offered for sale to physicians. Many manufacturers almost entirely confined their output to the requirements of the armed services or for lease commitments, while others converted their facilities to the fabrication of materials of war. For these reasons fewer appliances have been submitted to the Council, and investigations of apparatus have been greatly curtailed.

Because specialists have been too busy in private practice to write papers or have been engaged with military duties, only a limited number of authoritative articles about physical medicine were prepared, considered and published. The Council has published eighteen reports and reported on fourteen devices in THE JOURNAL. Several other pieces of equipment have been investigated, but reports on them have not yet been published.

Each year the Council does a formidable amount of work investigating apparatus submitted. In some instances the investigations have revealed that products submitted have little or no value and, based on the reports of the Council and its investigators, in many instances the promoter will agree to withdraw the product from the market. In view of such cooperation, the Council holds its report in abeyance. However, the Council does not hesitate to publish reports announcing to the profession the true value of a questionable appliance. Many inquiries about physical medicine have been referred to the Council and have received attention.

DIATHERMY APPARATUS

Diathermy apparatus, as all physicians are aware, generates high frequency electrical energy which is comparable to that generated by radio transmitters. Not all of the electrical energy is absorbed by the tissues undergoing treatment; some of the high frequency energy escapes and is radiated into space, and this energy will in some instances unknown to the physician interfere with radio communication. The Council has cooperated with the Federal Communications Commission in an effort to solve this problem. The commission has carefully surveyed the field in which high frequency electrical energy is used and has recommended three channels for medical and industrial heating applications. The commission expects that all diathermy equipment manufactured henceforth will maintain the frequency within the limits prescribed.

Although the commission has not declared a time limit, a reasonable period of probably five years will doubtless be allowed for physicians to liquidate their diathermy equipment, screen it, dispose of it or purchase apparatus which will be frequency controlled.

PUBLICATIONS

A completely revised Handbook on Physical Medicine containing several new, authoritative and valuable articles has been published and is ready for distribution.

The Manual of Occupational Therapy, consisting of articles first published in WAR MEDICINE, has been assembled and made into pamphlet form. The American Occupational Therapy Association and the Subcommittee on Rehabilitation of the National Research Council, together with specialists of the Council in this field, have cooperated in its preparation.

COUNCIL CONSULTANTS

Physical medicine embraces many specialized fields. The Council on Physical Medicine, consisting of twelve members, can scarcely be expected to have all the critical and authoritative information regarding all problems that are presented to it, and it is therefore fortunate in having groups of consultants, giving their services gratuitously as do the members of the Council, who advise on problems arising in specialized fields. There are consultants on audiometers and hearing aids, on respirators, on roentgen ray equipment, on contraceptive devices, on ophthalmic devices, on electrocardiographs, on education and on artificial limbs. Consultants on occupational therapy and on electroencephalography recently have been added to this group.

EDUCATION

In all matters pertaining to postgraduate training of physicians planning to specialize in physical medicine and to the education of physical therapy and occupational therapy technicians, the Council has consulted with other authoritative groups in the field. The Council has cooperated with the Council on Medical Education and Hospitals, the American Registry of Technicians of the American Congress of Physical Medicine and the American Physiotherapy Association.

To assist in promotion of sound physical therapeutic measures in the medical corps of the armed forces, the Council prepared two sets of slides which may be borrowed for instructional purposes. These slides are now available to schools of medicine, medical societies, clinics and interested civilian medical groups. The Council is now undertaking, with the help of its consultants, the revision of films for instructional purposes.

AUDIOMETERS AND HEARING AIDS

The manufacturers of hearing aids were very active during the war. Hearing aids were considered vital to the war effort, and, since the amount of raw materials required to make one unit is very small, governmental agencies made materials available. With the help of its consultants on audiometers and hearing aids the Council has prosecuted its examinations of audiometers and hearing aids and has published reports on them. The Council greatly appreciates the cooperation and advice it has received from the American Academy of Ophthalmology and Otolaryngology, the American Otolological Society, the American Laryngological, Rhinological and Otolological Society and the American Society for the Hard of Hearing and its several chapters.

OPHTHALMIC DEVICES

Orthoptics, which deals with the defective habits of seeing and with the defects of binocular vision and of ocular motility, has been given consideration by the Council. The consultants on ophthalmic devices, who are also members of the American Committee of Optics and Visual Physiology, have given valuable assistance in the investigation of charts for testing vision, muscle balance, instruments for orthoptic training and other devices utilized in the ophthalmic field.

ARTIFICIAL RESPIRATION AND RESUSCITATION

At the request of the Council on Physical Medicine the Board of Trustees awarded substantial grants for investigation of artificial respiration and resuscitation. Five years ago a grant was awarded for a survey of artificial respiration which has now been completed, and the report of this survey is ready for publication. The information gathered by the investigators confirms the Council's stand concerning the acceptance or rejection of devices for administering mechanical respiration. Since apparatus is seldom on hand in an emergency, the Council believes that every person should know how to give artificial respiration by an approved manual method. Critical evidence indicates that the first five minutes of complete anoxia are the most important, and artificial respiration should be applied within this period if any hope of survival of the patient is expected. The chances of survival are considerably lessened if artificial respiration is applied later. Hence the Council has cooperated with the American Red Cross in educational activities promoting the manual method of artificial respiration.

(To be continued)

Bureau of Information

SUMMARY SHEETS FROM VERMONT
AND VIRGINIA

Completed county summary sheets have been received from counties in Vermont through Dr. Benjamin F. Cook, secretary, Vermont State Medical Society, and from Virginia through Miss Agnes V. Edwards, executive secretary, Medical Society of Virginia.

The accompanying tables give data from selected counties in these states. The column giving the number of persons per telephone is used as one index of the economic status of the area. Many physicians over 65 years of age are carrying on large practices and are doing much to maintain the health of communities. They are not included in computing physician population ratios, however, as the future needs of the communities will be largely dependent on younger physicians.

Vermont

County ¹	Principal Cities ²	Population	Physicians Under 65	Persons per Physician	Persons per Telephone ³
Addison.....		14,653	8	1,856	9
Bennington.....	Bennington.....	20,653 7,628	10	2,085	8
Caledonia.....	St. Johnsbury..	21,793 7,437	12	1,816	7
Essex.....		5,389	2	2,695	15
Grand Isle.....		3,176	1	3,176	8
Lamoille.....	Morrisville.....	9,218 3,130	5	1,844	9
Orange.....		17,038	4	4,259	9
Rutland.....	Randolph.....	3,218 39,069	21	1,857	7
	Rutland.....	17,182			
	West Rutland..	2,922			
Washington.....		34,075	20	1,704	6
	Barre.....	10,909			
	Montpelier.....	8,066			
	Waterbury.....	3,074			
		25,149	16	1,572	6
		9,622			
		4,236			

Virginia

County ¹	Principal Cities ²	Population	Physicians Under 65	Persons per Physician	Persons per Telephone ³
Bath.....		5,747	3	1,882	12
Buckingham.....		11,106	3	3,702	142
Culpeper.....		11,997	6	1,999	12
Floyd.....		10,626	3	3,542	7
Gloucester.....		9,426	3	3,142	28
Halifax.....	South Boston..	36,447 5,252	6	7,289	48
Northampton.....		16,202	10	1,620	27
Rappahannock.....		6,102	2	3,051	56
Smyth.....	Saltsville.....	27,084 2,650	12	2,257	27
Warren.....	Front Royal....	11,386 3,831	7	1,626	11

1. Bureau of Census, estimated population 1913.

2. Bureau of Census, population 1910.

3. Based on 1910 figures, American Telephone and Telegraph Company.

A current knowledge of needs of communities for doctors is essential if adequate help is to be given veteran medical officers in their problems of medical practice. These needs can be indicated on the summary sheets under "Remarks" by the state and county secretaries and are then available to inquiring medical officers. Frequent reports from state and county medical societies about needs of communities for doctors will help maintain current files and will increase the service of the Bureau.

With the information available on a completely filled out summary sheet, it is readily possible for an interested medical officer to make an initial selection of areas in which he might like to practice. Since vacancies are held open in many communities for doctors now in military service, further investigation by direct correspondence with state and county medical societies will always be necessary to insure an accurate report of the needs of individual communities.

Washington Letter

(From a Special Correspondent)

Oct. 15, 1945.

Discussion of Psychiatric Problems by Canadian Health Official

Psychiatric problems of returning veterans will be discussed here by Major Gen. G. Brock Chisholm, deputy minister of national health and welfare in Canada, who is to speak on the first of two programs on "The Reestablishment of Peacetime Society; Responsibilities of Psychiatrists," Tuesday and Wednesday in Interior Department Auditorium. General Chisholm will spend the week in conferences with U. S. officials and psychiatrists concerned with veterans' problems. He conferred today with officials of the U. S. Public Health Service and Tuesday was to talk at the Navy Medical Center, Bethesda, Md. He will be in Baltimore Thursday to visit the Henry Phipps Psychiatric Clinic at Johns Hopkins Hospital and the Sheppard and Enoch Pratt Hospital. Friday he will inspect St. Elizabeths Hospital in Washington. Head of the Canadian Army Medical Corps during the war, General Chisholm has been active in creating an understanding of servicemen's points of view. Also taking part in the program will be Secretary of Commerce Henry Wallace, who will appear on a panel discussion with government officials and psychiatrists Wednesday evening. With him in the discussion will be Undersecretary of the Interior Fortas, Gen. Omar N. Bradley, Veterans Administrator; Watson B. Miller, federal security administrator; Anthony Hyde, deputy director of the Office of War Mobilization and Reconversion; Major Gen. Paul R. Hawley, acting Surgeon General of Medical Service of the Veterans Administration, and Dr. Harry Stack Sullivan, president, Washington School of Psychiatry. Both programs, open to the public, are sponsored by the William Alanson White Psychiatric Foundation.

Miniature X-Ray Apparatus Is Demonstrated

In connection with the fiftieth anniversary of the discovery of the x-rays by Wilhelm Conrad Roentgen a new miniature x-ray apparatus, developed after three years' research, which speeds up the process so that a thousand chest pictures may be taken in an eight hour day, is being demonstrated. The 70 mm. unit is used for screening indications of the disease and is operated with the use of a recent discovery known as a phototimer developed by Dr. Russell H. Morgan and Dr. Paul Hodges of the University of Chicago. Capt. Milton Birnkrant, Army physician associated with the U. S. Public Health Service, is demonstrating the miniature x-ray equipment in New York and states that, while previously an x-ray picture cost 60 cents, the new, smaller picture can be taken for 3 cents. He declares that the rapid survey of whole communities and industries is now feasible.

Security Restrictions Lifted on Powerful Rat Poison

Security restrictions have been lifted on publication of information about ANTU, rat poison so powerful that 1 pound could kill 300,000 rats. It is not dangerous to man. The poison has been a closely guarded secret during the war. Facts about the poison are revealed in *Public Health Reports*. Credit about the discovery goes to Dr. Curt P. Richter of Phipps Psychiatric Clinic, Johns Hopkins Hospital, Baltimore. The word ANTU is from the initial letters of the chemical name alpha-naphthyl thiourea. It is a fine gray powder with little odor or taste. It acts exclusively on rats, killing in an unusual way by causing a dropsy of the lungs so great that the animals are drowned in this fluid from their own bodies.

Navy Losses Through Mental Disorders

Vice Admiral McIntire, submitting figures to the House Naval Affairs Committee prepared by Capt. Francis J. Braccand, chief of the navy's neuropsychiatric division, said that the Navy, with a wartime strength of 3,385,000, lost the services of 171,267 men through emotional and mental disorders, insanity and inaptitude. At the conclusion of his testimony Chairman Vinson, Democrat of Georgia, recommended that the Navy establish its own hospital for mental disease "in the central part of the United States." He asked Admiral McIntire to come before the committee some time before Christmas with recommendations.

Meeting in Washington of Airlines Medical Directors

The executive council of the Airlines Medical Directors Association met here to discuss problems attendant on expanded commercial air travel. The party was headed by Dr. Hodges McKnight of Fort Worth, Texas, president, representing American Airlines, and attending were Col. A. D. Tuttle, Chicago, United Air Lines; Dr. Frederick H. Shillito, New York, Pan American Airways; Dr. Francis N. Kimball, New York, American Export Airlines, Inc.; Dr. Howard K. Edwards, Miami, Eastern Airlines, and Dr. L. G. Lederer, medical director and director of personnel administration of Pennsylvania-Central Airlines.

Extension of Child Care Centers Predicted

Chairman Fritz G. Lanham of the House Public Buildings and Grounds Committee, father of the Lanham act, has predicted that the Federal Works Agency will keep the wartime child care centers in operation past the scheduled October 31 closing date. The FWA states that extension of the program rests entirely with Congress. George H. Field, commissioner of the FWA Bureau of Community Facilities, says that the agency requires some of the \$19,000,000 of Lanham act money the House Appropriations Committee plans to repeal if the centers are to be kept open. There has been a nationwide clamor from mothers for continuance of the program.

Two Distinguished Women Scientists Honored

Drs. Ida Bengston and Alice Evans were honored by Surgeon General Thomas Parran and more than a hundred of their friends and colleagues on their retirement after being with the U. S. Public Health Service since 1918 and 1916 respectively. Dr. Evans identified undulant fever in 1923, contracting the disease during her work on it. Dr. Bengston, during 1935 and 1936, prepared the standard for gas gangrene toxins and anti-toxins now used by the League of Nations Health Committee in Copenhagen.

Reduction in Size of Army

Secretary of War Patterson reports that all but 1 million of the 8 million men in the Army will be discharged by next July. It is to be expected that a proportionate number of medical officers will be released to civilian duty. Mr. Patterson declared that personnel will be released as fast as possible. He said that the Army's discharge rate is now 26,000 a day and that more than a million men have been released since V-E day. He argued for retention of the draft, declaring that the Army is counting on 50,000 draftees and 30,000 volunteers each month.

Coming Medical Meetings

American Medical Association House of Delegates, Chicago, Dec. 3-6.
Dr. Olin West, 535 N. Dearborn St., Chicago 10, Secretary.

American Ophthalmological Society, Hot Springs, Va., Nov. 12-14.
Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Society of Tropical Medicine, Cincinnati, Nov. 12-15. Dr. Joseph S. D'Antoni, Tulane Ave., New Orleans 13, Secretary.

Indiana State Medical Association, French Lick, Nov. 6-8. Mr. Thomas A. Hendricks, 23 E. Ohio St., Indianapolis 4, Secretary.

Southern Medical Association, Cincinnati, Nov. 12-15. Mr. C. P. Loran, Empire Bldg., Birmingham 3, Alabama, Secretary.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CONNECTICUT

Personal.—Dr. John E. Flaherty, Rockville, has been elected chairman of the state fish and game board for two years. —Dr. Clarence G. Thompson, Norwich, has been appointed health officer of the town of Preston.

Research on Penicillin.—The New Britain General Hospital, New Britain, has been given funds by the Office of Scientific Research and Development to organize a research laboratory to study the effectiveness of penicillin as a curative agent in the treatment of experimental syphilis in human beings. The investigation is part of a cooperative study being carried out in several large centers in the country under the direction of a subcommittee on venereal diseases of the National Research Council. Dr. Paul D. Rosahn, pathologist in charge of laboratories at the New Britain Hospital, has been named investigator by the Office of Scientific Research and Development.

ILLINOIS

Forty Years as Postmaster.—Dr. Guy F. Turner, Long Point, was entertained at a dinner recently in recognition of his completion of forty years of service as postmaster, it is reported. He retired from the position on August 31. The celebration was also said to be in honor of Dr. Turner's birthday.

Chicago

Robert Cunningham Joins the "Modern Hospital."—Mr. Robert M. Cunningham Jr., associate editor of *Hygieia*, has been named managing editor of the *Modern Hospital* of Chicago, succeeding Alden B. Mills who left October 13 to become superintendent of the Huntington Memorial Hospital, Pasadena, Calif. In addition to his work on *Hygieia*, which is the health magazine of the American Medical Association, Mr. Cunningham has been since 1937 director of public relations on a part time basis for Evanston Hospital, Evanston, Ill. He has written extensively for national magazines on medical and related topics. Before joining *Hygieia* in 1941, Mr. Cunningham was for three years a member of the staff of the Chicago Plan for Hospital Care, the nonprofit hospital prepayment organization. He served variously as assistant to the executive director, head of the hospital department and director of enrolment and public relations.

Faculty Changes at Illinois.—Effective September 1 the following members of the faculty at the University of Illinois College of Medicine have been promoted to the rank indicated:

- Dr. Arthur R. Cooper, Oak Park, Ill., to professor of anatomy.
- Dr. Roy L. Webb, Charleston, W. Va., to professor of anatomy.
- Dr. Abram R. Hollender, Miami, Fla., to professor of otolaryngology.
- Dr. Warren S. McCulloch, to professor of psychiatry.
- Dr. William H. Cassels, to professor of surgery.
- Robert H. Krehbiel, Ph.D., to associate professor of anatomy.
- Dr. Oliver E. VanAlyea, to clinical associate professor of otolaryngology.
- Dr. Richard W. Watkins, to clinical associate professor (Rush) of otolaryngology.
- Dr. Ford K. Hick, Oak Park, Ill., to associate professor of medicine.
- Dr. Theodore J. Wachowski, to associate professor of radiology.
- Dr. Benjamin D. Braun, to clinical assistant professor of radiology.
- Dr. Harold C. Lueth, Evanston, Ill., to associate professor of medicine.
- Dr. James B. Eyerly, to clinical professor of medicine.
- Dr. Loren W. Avery, to clinical professor of neurology.
- Dr. Ben W. Lichtenstein, to associate professor of neurology.
- Dr. Hiram J. Smith, to associate professor of ophthalmology.
- Dr. Carl Apple, to associate professor of ophthalmology.
- Dr. Louis Bothman, to clinical professor of ophthalmology.
- Dr. Ralph Spaeth, to assistant professor of pediatrics.
- Dr. Gertrude E. Howe, Cincinnati, to assistant professor of pediatrics.
- Dr. Carl Irenicus Jr., to assistant professor of surgery.
- Dr. Roy O. Riser, Park Ridge, Ill., to assistant professor of ophthalmology.

This year for the first time the University of Illinois is using the word clinical for its part time faculty members who are in the clinical departments.

IOWA

Clarence Van Epps Retires.—Dr. Clarence E. Van Epps has retired from his administrative activities at the State University of Iowa College of Medicine, Iowa City, after twenty-six years in the position. The state medical journal reports that Dr. Van Epps will continue his work on a part time basis.

Investigation of Abortion Ring Follows Physician's Arrest.—Investigation into activities of an alleged abortion ring was started September 22 in Rockford following the arrest of Dr. Manly H. Shipley, Rockford, Ill., according to the *Davenport Times*. A newspaper report indicated that a woman had informed the state's attorney's office that the physician had performed an illegal operation. At the time of a raid on Dr. Shipley's offices 7 women were taken into custody for questioning; 5 were patients, according to the physician, and the other 2 were said to be nurses employed by him.

Course on Tropical Diseases.—A course on laboratory diagnosis of malaria and tropical diseases will be held at the Iowa State Hygienic Laboratory, Iowa City, October 29-November 3. The course is sponsored by the State University of Iowa College of Medicine and the state department of health in cooperation with the U. S. Public Health Service. Travel and other expenses of those who attend will be met with funds derived from the public health service. The course will be similar to one conducted July 23-28 (THE JOURNAL, May 19, p. 216).

MICHIGAN

Research of Virus Diseases.—Research on virus diseases will be initiated at the Wayne University College of Medicine, Detroit, this fall, following acceptance by the Board of Education of a grant of \$2,500 plus equipment from Dr. Hugo A. Freund, Detroit, and the children's fund of Michigan, according to the *Detroit Medical News*.

State Medical Election.—Dr. William A. Hyland, Grand Rapids, was named president-elect of the Michigan State Medical Society at the meeting of the council on September 18. Dr. Ray S. Morrish, Flint, was inducted into the presidency. The next annual session of the State Medical Society will be held at the Book-Cadillac Hotel, Detroit, September 25-27.

Dr. Pelouze Lectures on Venereal Disease.—"The Modern Treatment of Gonorrhea" will be the theme of a series of lectures to be given throughout the state of Michigan beginning in Lansing, October 30, by Dr. Percy S. Pelouze, Philadelphia. The series will be presented under the auspices of the council and committee of postgraduate medical education of the Michigan State Medical Society.

Hospital Urges Patients to Return to Former Physicians.—The staff of Mount Carmel Mercy Hospital in Detroit has recently distributed to its members a placard with the following notice printed on it and intended to be posted in the waiting room of the various staff members:

If you have been a patient here because your doctor has been a member of the armed forces, we suggest that you contact him upon his return.

NEW YORK

Cancer Teaching Day.—On November 1 a cancer teaching day will be held at the St. Lawrence State Hospital, Ogdensburg, under the auspices of the Medical Society of the County of St. Lawrence, St. Lawrence State Hospital, Medical Society of the State of New York, and the New York State Department of Health division of cancer control. Speakers will include:

- Dr. Morton L. Levin, Albany, Cancer Incidence, Prevalence and Mortality.
- Dr. Cushman D. Haagensen, New York, Cancer of the Breast.
- Dr. Clyde L. Randall, Buffalo, Diagnosis and Treatment of Cancer in the Female Pelvis.
- Dr. Lloyd F. Craver, New York, Leukemias and Hodgkin's Disease.

New York City

Proposed Alfred Smith Memorial.—On October 4 a campaign to raise \$3,000,000 to construct the Alfred E. Smith Memorial Hospital was launched with a dinner at the Hotel Waldorf-Astoria. The memorial will be a sixteen story addition to St. Vincent's Hospital. The 250 beds planned in the new structure will include 100 additional ones in the charity wards and 80 more for semiprivate patients. The hospital will be a "living memorial" perpetuating Alfred Smith's services to his fellow man. The dinner to launch the campaign for funds was held on the first anniversary of his death.

Neva R. Deardorff to Establish System for Health Insurance Plan.—Neva R. Deardorff, Ph.D., New York, assistant executive director of the Welfare Council of New York City, has been appointed to the staff of the health

Insurance Plan of Greater New York to establish a uniform method of collecting and correlating all records of service to members of the plan, according to the *New York Times*. In announcing the appointment it was stated that there is a great need to know the frequency and duration of illness, the need for medical care and the frequency of doctor's services rendered.

Lectures to the Public.—"Medicine Today" is to be the theme of the Laity Lectures Series for 1945-1946 under the auspices of the New York Academy of Medicine. The lecturers will be:

Dr. John F. Fulton, New Haven, Conn., November 8, *Medicine Today*.
Dr. Willard C. Rappleye, New York, November 29, *The Making of the Doctor*.

Drs. Basil C. Maclean, Rochester, and Donald M. Clark, Peterborough, N. H., December 13, *The Ways and Means of Modern Medicine*.
Edwin J. Cohn, Ph.D., Boston, December 27, *Research in the Medical Sciences*.

Dr. Edward S. Rogers, Albany, January 10, *The Layman's Part in Medicine*.

Dr. Dean A. Clark, Washington, D. C., January 24, *Economics and Medicine*.

Medical College Plans Expansion.—The dean of two major departments, that of biophysics and one on humanities in relation to medicine, is included in the general program of expansion planned at the New York University College of Medicine, New York. In addition the program includes the introduction of a premedical year in the college to graduate physicians in seven instead of eight years after high school. According to the *New York Times* the four points in the program are:

Full recognition of medicine as a social science, with emphasis both in teaching and in practice on the environment and psychologic aspects of illness.

Increased instruction in the physical sciences of biology, chemistry and especially physics.

A planned research program based on the coordinated work of many departments and directed toward the solution of selected major medical problems.

A plan of community medical care to provide comprehensive diagnosis and treatment under a prepayment group practice system.

In a statement Dr. Donald Sheehan, New York, acting dean of the medical college, said that "emphasis will be placed on the social and psychologic causes of illness and on the effects of living and working conditions on human welfare. These factors are coming to be the chief cause of ill health in modern urban communities. To give the doctor breadth of view he must also know something of the history, the ideals and the economic problems of medicine. To offset the tendency to make the modern doctor a mere technical specialist, a new department dealing with the humanities in relation to medicine is projected."

NORTH CAROLINA

Robert Stimpson Resigns as Vital Statistics Head.—

Dr. Robert T. Stimpson, Raleigh, who has been director of the division of vital statistics of the North Carolina Board of Health, has resigned to enter private practice in Winston-Salem. Dr. Stimpson, who graduated at the University of Pennsylvania School of Medicine, Philadelphia, in 1927, joined the state board of health in January 1932 as assistant director of the division of vital statistics.

New Head of Pathology Department.—Dr. Robert P. Morehead, Wake Forest, associate professor of pathology, has been appointed director of the department of pathology and bacteriology at Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, to succeed Dr. C. C. Carpenter, who asked to be relieved of the direction of the department because of the pressure of administrative duties as dean. Dr. Carpenter will continue to be a member of the staff of the department, assuming the title of professor of legal medicine and director of the laboratory of clinical pathology.

Meeting of Pathologists.—The North Carolina Pathological Society met at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, on September 7. The program included the following:

Col. Alfred Blumberg, M.C., Fort Bragg, Rhinosporidiosis.
Dr. Vaty Menkin, Durham, Leukopenia and Inflammation.
Dr. Bernard Black-Schaffer, Durham, Pathogenesis of Purpura Meningococcemia.

Dr. Lalla Iverson, Durham, Chloroma, Report of Two Cases.
Dr. Hugh Dorch Jr., Durham, Sensitization to Placental Products as a Cause of Toxemia of Pregnancy.

Dr. Paul Kimmelsiel, Charlotte, Lymphoid Hyperplasia of the Thyroid and Ischemic Infarctions of the Prostate.

Dr. Frank W. Konzelmann of Atlantic City, N. J., president of the American Society of Clinical Pathologists, spoke at the dinner meeting on "The Economics of the Practice of Pathology." At the business meeting the following officers were elected: Dr. Hershel C. Lennon, Greensboro, president, Dr. Kimmelsiel vice president and Dr. Wilbur C. Thomas, Winston-Salem, secretary-treasurer.

Personal.—Dr. George A. Hays, who recently returned to the United States from Alaska, where he was executive director of the Territorial Department of Health (*THE JOURNAL*, August 4, p. 1040), has been placed in charge of the Charlotte Health Department pending the appointment of a successor to Dr. William R. Cameron. —Mr. Reid Holmes, assistant superintendent of Duke Hospital, Durham, has been named administrator to succeed Mr. Ray E. Brown, who resigned to become assistant director of the University of Chicago Clinics. —Joseph E. Hawkins Jr., Ph.D., formerly instructor in physiology and special research associate in the psychoacoustic laboratory at Harvard Medical School, Boston, has joined the faculty of the Bowman Gray School of Medicine as assistant professor of physiology and pharmacology.

OHIO

Library Named for Woman Physician.—The medical library at Dunham Hospital, Cincinnati, has been named in honor of Dr. Vera V. Norton, who was associated with the hospital until her recent retirement. *Women in Medicine* reports that this library is one of the most valuable on the subject of tuberculosis.

New Chief of Industrial Hygiene Appointed.—Dr. Charles M. McGill, U. S. Public Health Service, has been named chief of the industrial hygiene division of the Ohio State Department of Health. He succeeds Dr. Christopher Leggo, who resigned several months ago. Dr. McGill graduated at Vanderbilt University School of Medicine, Nashville, Tenn., in 1935. He was commissioned in the U. S. Public Health Service in 1936 and subsequently served in various capacities throughout the country. In July 1945 he completed a postgraduate course at the Harvard School of Public Health, Boston, and received a degree of M.P.H. in industrial hygiene.

OKLAHOMA

Annual Clinical Conference.—The fifteenth annual clinical conference of the Oklahoma Clinical Society will be held at the Biltmore Hotel, Oklahoma City, November 26-29. The guest lecturers will be:

Dr. Lewis G. Allen, Kansas, Radiology.
Dr. Walter Putnam Blount, Milwaukee, Orthopedic Surgery.
Dr. Louis A. Brunsting, Rochester, Minn., Dermatology.
Dr. Richard B. Catell, Boston, Surgery.
Dr. Warren Henry Cole, Chicago, Surgery.
Dr. Virgil S. Counseller, Rochester, Minn., Surgery.
Dr. Charles Brenton Higgins, Chicago, Urology.
Dr. Ernest E. Irons, Chicago, Internal Medicine.
Dr. Raymond William McNeely, Chicago, Surgery.
Dr. Avery D. Prangen, Rochester, Minn., Ophthalmology.
Dr. Jean Paul Pratt, Detroit, Gynecology.
Dr. Chester A. Stewart, New Orleans, Pediatrics.
Dr. Charles Turner Stone, Galveston, Texas, Internal Medicine.
Dr. Theodore E. Walsh, St. Louis, Otolaryngology.
Dr. Frank E. Whitacre, Memphis, Tenn., Obstetrics.
Dr. Selon M. White, Minneapolis, Internal Medicine.

SOUTH CAROLINA

Annual Refresher Course.—The Medical College of the State of South Carolina, Charleston, will hold its annual refresher course October 31-November 2. Among the speakers will be:

Dr. Thaddeus L. Montgomery, Philadelphia, Bleeding in Obstetrics.
Dr. Richard Kovacs, New York, Physical Medicine and the General Practitioner.
Dr. Charles F. McKhann, Detroit, Advances in Pediatric Therapy.
Dr. Hal M. Davison, Atlanta, Ga., Allergy and General Medicine.
Dr. Walter C. Alvarez, Rochester, Minn., New Developments in Gastroenterology.
Dr. Robert B. McIver, Jacksonville, Florida, Abdominal Pain and Noncalculous Obstruction of the Upper Urinary Tract: Diagnosis and Surgical Management.
Dr. Eli Jefferson Browder, Brooklyn, Surgery for Pain.
Dr. Jean Verbrugge, Brussels, Belgium, Basic Principles of Fracture Surgery.
Dr. John S. Lockwood, New Haven, Conn., Recent Advances in Prevention and Treatment of Surgical Infection.

The program will include clinical case presentations and round table discussions. At the founder's day banquet at the Francis Marion Hotel, November 1, Dr. Alvarez will speak on the "Emergency of Modern Medicine from Ancient Folk-Ways."

TEXAS

Speakers' Bureau Formed to Combat Socialized Medicine.—The Texas State Medical Association has created a speakers' bureau, members of which will be available to give talks on socialized medicine to state lay organizations, civic clubs, P. T. A. groups, American Legion posts, chambers of commerce, women's clubs and other representative organizations. The members of the speakers bureau were chosen by the fifteen councilor districts of the state association.

Personal.—Chauncey D. Leake, Ph.D., vice president, University of Texas Medical Branch, Galveston, has been elected corresponding member of the Academy of Sciences of Lima. —Charles M. Pomerat, Ph.D., professor of anatomy, University of Texas Medical Branch, Galveston, has been elected an honorary member of the Academy of Sciences of Mexico. Dr. Pomerat recently spent six weeks in Mexico City as the guest of the academy and of the school of medicine to assist in the establishment of tissue culture laboratories.

Medical Foundation Campaigns for Funds.—Announcement of a campaign to raise a five year operating fund of \$1,300,000 for the Southwestern Medical Foundation, Dallas, has been received from Dr. Edward H. Cary, foundation president. A fund of \$1,000,000 is now held by the foundation for the building of the main plant of the Southwestern Medical College of the Southwestern Medical Foundation, which will be constructed adjacent to the new \$7,000,000 City-County Hospital as the nucleus of a new medical center in Dallas.

Child Health Council.—On August 12 the organization of the Texas Child Health Council was completed with the following members:

Dr. Frank H. Lancaster, Texas Pediatric Society.
Dr. John E. Ashby, Dallas, American Academy of Pediatrics.
Dr. Holman Taylor, Fort Worth, State Medical Association of Texas.
Dr. Fred P. Helm, Austin, Texas State Board of Health.
Dr. Thomas J. McElhenny, Austin, American Academy of Pediatrics, Texas Section.
Dr. James H. Park Jr., Houston, Baylor University, College of Medicine, Department of Pediatrics.
Dr. Hugh L. Moore, Dallas, Southwestern Medical College, Department of Pediatrics.
Chauncey D. Leake, Ph.D., Dean, University of Texas Medical Branch, Galveston.
F. Elliott, D.D.S., Houston, dean, University of Texas School of Dentistry.
Dr. Boyd Reading, University of Texas School of Medicine Department of Pediatrics.
Dr. George M. Decherd Jr., Galveston, director, Postgraduate Education, University of Texas Medical Branch.
Dr. Arild E. Hansen, Dallas, University of Texas child health program.

According to the *Texas State Journal of Medicine*, unable to be at the conference, but presumably considered a part of the personnel of the Council, were Dr. Cobb O. Terrell, Fort Worth, regent of the University of Texas, who was invited as a representative of pediatricians at large; Robert R. L. Sutherland, Ph.D., Austin, director, Hogg Foundation, and W. A. Buckner, D.D.S., Austin, dental consultant, Maternal and Child Health Division of the Texas State Board of Health. The functions of the Texas Child Health Council as set up at the first meeting are to:

Correlate, encourage and initiate activities which concern the medical and dental aspects of the child health problem in Texas, recognizing the essential and necessary leadership of physicians and dentists in these matters.

Integrate pediatric meetings and conferences and foster special ones. Stimulate investigative activities: clinical problems and fundamental research.

Aggressively cooperate in programs pertaining to child health carried on by professional, semiprofessional and lay groups, under the leadership of physicians and dentists.

Point out the present unsatisfactory status of hospital facilities for children in Texas and institute measures to improve these conditions. Cooperate with the state board of health in reducing child mortality and the high incidence of preventable children's diseases.

Assist in promoting more effective pediatric training programs for Texas pediatricians, general physicians and others concerned with child health.

WISCONSIN

Jackson Clinic Resumes Postgraduate Series.—With a special program September 29 the Jackson Clinic, Madison, resumed its postgraduate clinics, which had been held bimonthly the past twenty years until 1941.

State Medical Golfers Organize.—The Wisconsin State Medical Golfers' Association has been organized with Drs. George R. Love, Oconomowoc, the first president, Joseph C. Griffith, Milwaukee, vice president, and Ernest W. Miller, Milwaukee, secretary-treasurer. The first tournament was held at the Ozaukee Country Club, August 30.

Ira Thompson Honored.—The Racine County Medical Society gave a dinner at the Meadowbrook Country Club, Racine, September 20, in honor of Dr. Ira F. Thompson, who is retiring as health officer of Racine (*THE JOURNAL*, June 30, p. 678). The speakers at the dinner included Drs. Carl N. Neupert, Madison, state health officer; William T. Clark, Janesville; Albert E. Rector, Appleton; Stephen E. Gavin, Fond du Lac; George W. Walter, Racine, president of the county medical society; T. Charles Hemmingsen, Russell M. Kurten, all of Racine, and W. W. Bauer, formerly health officer of Racine and now director of the Bureau of Health

Education of the American Medical Association. Dr. Thompson, who was presented with a gold mounted pen and pencil set, will continue as vice president of the state board of health. He is retiring to a farm near Beloit.

GENERAL

Edwin MacEwan Named to New Position with Cancer Society.—Mr. Edwin J. MacEwan has resigned as executive vice president of the chamber of commerce of New Haven, Conn., to become administrative director of the American Cancer Society, effective October 1. The appointment is a newly created one.

Course in Endocrinology.—The American College of Physicians will sponsor a course in endocrinology at the Hotel Continental, Chicago, November 5-10. The course offers an opportunity for physicians to bring themselves up to date in the field of endocrinology. The faculty of fifty-two includes many leading endocrinologists from all over the United States and Canada. Numerous institutions are represented. Dr. Willard O. Thompson, Chicago, is director of the course.

Macy Foundation Receives Gift.—The Josiah Macy Jr. Foundation of New York will receive the residuary estate of Mrs. Kate Macy Ladd, Peapack-Gladstone, who died August 27, according to the *New York Times*, September 14. Another provision for the foundation is contained in a clause in her will creating a fund of \$2,500,000 and stipulating that the income shall be used to initiate, stimulate, develop and support scientific investigations of the fundamental aspects of health, sickness and relief of suffering.

Relation of Atomic Bomb to X-Rays.—Dr. Robert S. Stone, professor of roentgenology, University of California School of Medicine, San Francisco, will discuss the connection between x-rays and the atomic bomb at the memorial dinner in honor of Wilhelm Conrad Roentgen at the Palmer House, Chicago, November 8 under the auspices of the American College of Radiology, Chicago Medical Society, Chicago Roentgen Society, Institute of Medicine of Chicago and the Physics Club of Chicago. The dinner will be one of the features of the week designated "x-rays in health week of the American College of Radiology" (*THE JOURNAL*, October 6, p. 471).

The Salmon Lectures.—Dr. Roy Graham Hoskins, research associate in physiology, Harvard Medical School, Boston, Salmon memorial lecturer for 1945, will deliver his lecture series "The Biology of Schizophrenia" on the three successive Friday evenings of November 2-16 at the Academy of Medicine, 2 East 103d Street, New York (*THE JOURNAL*, March 3, 1945, p. 535). Of the three lectures, the first will be "Biology of Man in Relation to Schizophrenia," the second "The Pattern of Schizophrenia" and the third "The Biological Appraisal of Schizophrenia." The lectures are sponsored by the Salmon Committee on Psychiatry and Mental Hygiene, 200 Retreat Avenue, Hartford 2, Connecticut.

Annual Report of Nutrition Foundation.—The Nutrition Foundation, New York, has just released its annual report for the year ended June 30, 1945. The foundation, since 1942, has allocated \$921,190 for fundamental research in the science of nutrition, covering the following six areas of activity: research directed toward discovering and measuring the human requirements for each of the forty or more essential nutrients, how each nutrient functions in the body, nutritive requirements for infants and mothers, relationships between nutrition and health, education to facilitate the application of new and sound information and projects undertaken chiefly as a direct contribution toward winning the war. The report discusses the various research projects carried out under the auspices of the foundation and may be obtained from the foundation offices in the Chrysler Building, New York 17.

Expansion of Winthrop Research Laboratories.—The Winthrop Chemical Company has announced the purchase of a 60 acre site at Rensselaer, N. Y., where new research laboratories will be constructed at a cost of more than two million dollars. According to Dr. Theodore G. Klumpp, New York, president of the company, the new structure will be situated close to the present plant and laboratory facilities and will replace the existing research laboratories. In addition, Sterling Drug, of which Winthrop is a subsidiary, will utilize the new laboratories to supplement research of its other units. Construction is expected to start next spring and to be completed within a year. In addition to offices, the administrative wing will have space for an 80,000 volume technical library. The biologic wing will contain twenty-five laboratory

units, together with rooms for photography, x-ray and extreme temperature testing. The chemistry wing will have thirty-two laboratory units as well as special chemical and development facilities and a pilot development plant.

Research Fellowships in Medicine.—The American College of Physicians announces the resumption of its research fellowships in medicine, which were discontinued during the war. These fellowships, limited in number, are designed to provide an opportunity for research training either in the basic medical sciences or in the application of these sciences to clinical investigation. They are for the benefit of physicians who are in the early stages of their preparation for a teaching and investigative career in internal medicine. Assurance must be provided that the applicant will be acceptable in the laboratory in which he has chosen to work and that the laboratory will supply the facilities necessary for the proper pursuit of the research. The term of appointment is for one year. The fellowship stipend will be from \$1,800 to \$2,500 per annum. Application forms for 1946 fellowships will be supplied on request to the American College of Physicians, 4200 Pine Street, Philadelphia 4, and must be submitted in duplicate not later than November 1. Awards will be made on or about November 18. Dr. Francis G. Blake, New Haven, Conn., is chairman of the committee on fellowships and awards.

Course in Allergy.—The American College of Allergists announces an instructional course at Thorne Hall, Northwestern University, Chicago, November 5-10. The course is free to all those serving in the armed forces. Among the speakers will be:

- Dr. Paul R. Cannon, Chicago, Experimental Allergy.
- Dr. Carl Draystedt, Chicago, Maternal Medicine of Allergy and Pharmacology of Drugs Used in Allergy.
- Dr. Albert D. Rudmann, Cleveland, Ocular Allergy.
- Dr. Andrew C. Ivy, Chicago, Reaction from Blood Transfusion.
- Dr. Alvin L. Barach, New York, Inhalation Therapy of Bronchial Asthma.
- Dr. Foster Kennedy, New York and Bayard T. Horton, Rochester, Minn., Allergy of the Central Nervous System—Migraine and Meniere's Disease.
- Dr. John Warlick Thomas, Richmond, Va., Allergic Bronchitis, Bronchiectasis.
- Dr. Theron G. Randolph, Chicago, Miscellaneous Allergies—Agranulocytosis.

At an informal dinner Monday, the first day, William H. Welker, Ph.D., will speak on "Antigenicity of Proteins in Relation to Allergy."

Changes in Status of Licensure.—The Massachusetts Board of Registration in Medicine on July 30 restored the license to practice medicine of Dr. Herbert N. duGerardell, East Boston. The Alabama State Board of Medical Examiners on August 6 revoked the license of Dr. James Franklin Johantgen, Talladega, Ala. (*THE JOURNAL*, July 21, p. 894). The California State Board of Medical Examiners recently took the following actions:

- Dr. Ferdinand M. Ferguson, North Hollywood, license revoked.
- Dr. Milton Francis Novotny, Long Beach, license revoked.
- Dr. Courtland R. Sanborn, Oakland, license revoked.
- Dr. Ben Smith, Los Angeles, license revoked.
- Dr. Roy Reginald Lessing Sturges, Los Angeles, license revoked.

The New York State Board of Medical Examiners announces that the license of Dr. Abraham Gillman, New York, has been reinstated. The New York board also recently took the following actions:

- Dr. Louis Stanley Barnett, New York, license revoked.
- Dr. Anthony A. Flaudina, New York, license revoked.
- Dr. Samuel Shauer, Brooklyn, license suspended for six months.
- Dr. Raymond J. Stockhammer, New York, license revoked.

The Michigan Board of Registration in Medicine on June 12 continued the suspension for one year of the license of Dr. Edward Harry Thomas, Detroit.

Health Council Urges "Pooling" of Resources.—Complete reorganization of the nation's 20,000 voluntary health agencies under a "strong, central agency" and the pooling of their fund-raising appeals on a countrywide basis were urged in a report made public September 16 by the National Health Council, an affiliation of eighteen health agencies. According to the *New York Times*, giving the voluntary agencies credit for much of the progress in public health, the report "Voluntary Health Agencies—An Interpretative Study," by Selskar M. Gunn, C.P.H., and Philip S. Platt, Ph.D., was compiled under a grant from the Rockefeller Foundation. It involved field work and research for three years and studied 568 agencies in sixty-five cities and twenty-nine states. It was stated that independent and uncoordinated attacks on specific diseases without central or unified planning often had resulted in con-

fusing the public as to the goals of individual and public health. It was believed that the expansion of the National Health Council with a dynamic program and effective field services to function on request for member organizations throughout the country would remedy this situation. The report recommends that the present separate money-raising appeals be coordinated in a nationwide campaign, while the two agencies with specially effective money-raising devices, the tuberculosis and infantile paralysis groups, were urged to broaden their fields of interest and service. The overall plan put forward in the report advocated the preparation of a single combined health agency budget for every city, town and village, using a technic similar to that of the National War Fund.

LATIN AMERICA

Personal.—Col. George M. Powell, M. C., is the new assistant chief health officer of the Panama Canal, succeeding Col. Albert R. Dreisbach, M. C., whose reassignment in June terminated a seven month tour of duty on the Isthmus.—Dr. Gonzalo Estrada de la Riva, Havana, Cuba, has been appointed professor of allergy for an extension course at the University of Havana. According to the *Annals of Allergy* although these postgraduate courses have been held the past four years, this is the first time that allergy has been included.—Major Harold Jackson Davis, M. C., has been named chief of the field party in Uruguay of the Servicio Cooperativo Inter-Americano de Salud Publica.

Guggenheim Fellowships.—Included among recent Latin American fellowships awarded by the John Simon Guggenheim Memorial Foundation for advanced study in the United States are the following in medicine:

- Dr. Jose Jesus Estable, subdirector, Institute for Experimental Medicine, Montevideo, Uruguay, studies in the field of experimental pharmacology, particularly the pharmacodynamics of emetine.
- Dr. Alfonso Graña, investigator, Institute for Experimental Medicine, Montevideo, Uruguay, studies in the field of immunology. Dr. Graña will work at the Mayo Foundation, Rochester, Minn., with Hiram L. Essex, Ph.D.
- Dr. Eduardo Aguirre Pequeno, director, Institute of Scientific Research, University of Nuevo Leon, Monterrey, N. L., Mexico, studies in the field of medical parasitology. He will work at Tulane University, New Orleans, with Ernest C. Faust.

CORRECTION

Hypoprothrombinemic Action of Quinine Sulfate.—In the article by Pink and Engelberg in *THE JOURNAL*, August 11, references 8 and 9 as printed lead to a misrepresentation. The prothrombinopenic action of the salicylates was established by the workers cited under 8 and 9, but the protective effect of vitamin K against such hypoprothrombinemia has been demonstrated only by the authors cited under 8, with the exception of Rapoport, Wing and Guest.

Government Services

Leon Gardner to Head Medical Library

Col. Leon L. Gardner, formerly in charge of public relations and military intelligence at the Surgeon General's Office, has been appointed director of the Army Medical Library by Surg. Gen. Norman T. Kirk. Col. Harold W. Jones, director of the library, will be retired from active duty January 1. He is now on terminal leave. Colonel Jones reached the statutory retirement age in November 1941 but was requested by the Surgeon General to remain on wartime duty as librarian of the Army Medical Library. He held this position until a year ago, when he took over the newly created office of the director. Colonel Gardner, former director of the Bureau of Army Affairs of the American Red Cross, graduated at the top of his class at the Army Medical School in 1924 and again at the Medical Field Service School at Carlisle, Pa., in 1925. He was awarded the Hoff medal and the Shimmer medal for his scholastic standing at each of those schools. In 1937 he qualified for service on the war department general staff by becoming a graduate of the Command and General Staff School at Fort Leavenworth, Kansas. Colonel Jones graduated at Harvard Medical School, Boston, in 1901. He was an honor graduate from the Army Medical School in 1906 and graduated from the Army Medical Field Service School in 1930.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 15, 1945.

Synthetic Estrogens in Malignant Disease

Prof. E. C. Dodds, who discovered the synthetic estrogen diethylstilbestrol, has reviewed the present status of synthetic estrogens in malignant disease in the *West London Medical Journal*. The fact that the female sex hormone responsible for secondary sexual characteristics can exist in three forms—estrone, estriol and estradiol—suggested to him the possibility of producing estrogens synthetically. These could be given by mouth. The first evidence that estrogens might influence the course of malignant disease was produced by Kaufmann in 1935, when he showed the beneficial effect of natural estrogens on kraurosis vulvae. This effect on a precancerous condition is perhaps the first indication of the value of these estrogens in malignant disease. But it is in carcinoma of the prostate that the greatest interest in these substances has recently been shown. Nearly fifty years ago castration for the relief of symptoms of carcinoma of the prostate was widely advocated. In many cases the primary growth and the metastases decreased. The operation naturally was objectionable, and interest in the subject died down until revived by the work of the American surgeon Charles Huggins. The British genito-urinary surgeon E. W. Riches stated at a joint meeting of the Pathological Society and the Biochemical Society that in his experience almost 95 per cent of the cases of carcinoma of the prostate respond to estrogens.

Professor Dodds considers that the mode of action of estrogens is obscure. The action may be on the pituitary by inhibiting the secretion of the gonadotropic hormone of the anterior lobe, it may be on the testes by suppressing the secretion of testosterone or it may be directly on the malignant growth itself. Of these hypotheses Dodds finds the first most attractive to the experimental biologist, but it is claimed that the effect of synthetic estrogen is superior to castration. This would indicate that suppression of the function of the anterior lobe of the pituitary is not the sole explanation. While the relief of symptoms occurs, cure cannot be claimed. But it must be remembered that diethylstilbestrol is the first substance ever produced that has an action of any sort on cancer when administered by mouth. The success in carcinoma of the prostate has led to the use of estrogens in every variety of carcinoma. In carcinoma of the breast beneficial effects have been obtained in only a small percentage of cases. Those recorded varied from slight relief to complete disappearance of the tumor and metastases. It is not known what type of case will respond or whether the effect is permanent.

Failure of Pertussis Vaccine

A. M. McFarlan, Elizabeth Topley and Mary Fisher in the *British Medical Journal*, August 18, report a trial of whooping cough virus carried out by the health department at Oxford under the direction of the Medical Research Council. Over 600 susceptible children from 6 months to 3 years of age attending welfare clinics and wartime day nurseries were divided into "inoculated" and "control" groups by methods designed to render the groups similar in every respect except for the inoculation. The inoculated children were given either two doses of pertussis vaccine at a four week interval or four doses at intervals of one, one and four weeks. The total dosage ranged from 40,000 to 100,000 million organisms; corresponding to an American dosage of 120,000 to 300,000 millions. Whooping cough occurred sporadically in Oxford during the

succeeding eighteen months. No significant difference was observed in the incidence or severity of whooping cough between the inoculated and the control children. Of 327 inoculated children 12.5 per cent and of 305 control 14.1 per cent developed definite whooping cough. The conclusion is that the investigation lends no support to the view that pertussis vaccine is of value in the prophylaxis of whooping cough, and it is suggested that its use should be discontinued till some positive evidence of its value is obtained in further carefully controlled trials. The vaccine used was prepared by Burroughs Wellcome & Co. Since the possibility could not be excluded that this vaccine differed in some material way from vaccines prepared in the United States and Canada, it is proposed to carry out another investigation with an American vaccine. This is now being undertaken with a vaccine manufactured by Parke, Davis & Co. of Detroit according to the method of Dr. Sauer of Evanston, Ill.

ICELAND

(From Our Regular Correspondent)

REYKJAVIK, Sept. 14, 1945.

Mass Radiography in the Early Detection of Pulmonary Tuberculosis

Last winter the inhabitants of Reykjavik underwent a mass examination with miniature radiography to detect tuberculosis. These examinations were made by the staff of the tuberculosis center of the capital under personal direction of Dr. S. Sigurdsson, head of the nation's campaign against tuberculosis. A total of 43,196 people were examined, or 94.2 per cent of the inhabitants. As all children under 1 year of age were omitted, being otherwise controlled, practically everybody who was not prevented by total infirmity, sickness or absence showed up voluntarily at the examination. Actually 99.6 per cent of people who could reasonably be expected to present themselves were examined. The examinations lasted four months, starting in the middle of January and being finished on the 19th of May. Of the total number 986 were requested to return for further examination. The reason for these requests was either that the pictures were technically imperfect or they were suggestive of disease.

RESULTS

Of the total number 25, or 0.5 per thousand, were found to have contagious tuberculosis. These persons were of all ages and their disease advanced to various degrees. None of them were cognizant of the disease before. Most of these people were sent to sanatoriums without delay. Another 25, or 0.5 per thousand, were found to suffer from active tuberculosis without having bacilli in the sputum. A further group, 14, or 0.3 per thousand, had pulmonary tuberculosis in a stage which required strict supervision. The total number of tuberculous patients found amounts therefore to 64, or 1.4 per thousand of the examined. Only 8 of these patients were known to the center before.

When compared with the findings of a similar investigation in London recently (*THE JOURNAL*, July 14, p. 822) it will be seen that the number of affected individuals found is almost ten times lower in Reykjavik than in London, where between 1 and 1.5 per cent of fresh cases were discovered. The explanation for this difference may be the previous activity of the tuberculosis center in Reykjavik, which has been searching efficiently for tuberculosis in a small town where conditions are more evident than in the great metropolis.

In spite of the few fresh cases found, the result is considered satisfactory. After all, 25 carriers, each of whom may be expected to transmit the disease to a number of other people, are by no means a negligible danger to the community, which can better afford the public expense than the danger which the ignorance of infection implies.

BRAZIL

(From Our Regular Correspondent)

SÃO PAULO, July 30, 1945.

The Transantral Route in Surgery of the Accessory Nasal Sinuses

Professor Erniro Lima has pointed out the benefits of the transantral route in surgery of the accessory nasal sinuses. The ethmoid is the genetic and anatomic center of the paranasal cavities; as such it acts as an evolutive pathologic center and is thus responsible, by origin or maintenance, for acute and chronic infectious states of the other sinuses. Polysinusitis is usually found in inflammatory states of the facial sinuses; the ethmoidofrontomaxillary association is the most common and sphenoiditis comes next, also commonly associated with posterior ethmoiditis. The role of the mucosa as a continuous intercavity element in the propagation of the infection should not be forgotten. Even though the inflammations of the sphenoidal and maxillary sinuses might originate from rhinopharyngeal or dental infections, the concomitant or subsequent inflammations of the labyrinth of the ethmoid represent the main factor in the maintenance of sphenoiditis or maxillitis.

According to Professor Erniro Lima's practice, certain procedures are now established in the transmaxillary method: (a) A small opening in the anterior wall of the maxillary sinus is sufficient to reach the intraethmoid and to maneuver inside it. (b) The complete destruction of the cells and other projections or bony laminae of the inferior angle of the ethmoid (between the lamina papyracea and the superior wall of the maxillary sinus) is indispensable. (c) The opening which allows the penetration in the ethmoid (in the superior internal angle of the maxillary sinus) should be made at the expense of the inferior ethmoid angle and never by sacrificing the nasal wall. (d) Penetrating the ethmoid, one should go toward the superior ethmoid angle (between the superior wall of the ethmoid and the orbital wall), where the roof of the ethmoid offers great resistance and where the cells with supraorbital prolongations can be found. (e) The route of the curet from the maxillary cavity to the upper wall of the ethmoid should describe from the bottom up the form of a Z; that is to say, to the upper wall of the sinus, to the inferior angle of the ethmoid, to the lamina papyracea, to the upper angle of the ethmoid and to the upper wall of the ethmoid. (f) The route of the curet anteroposteriorly should describe the shape of an elongated S; that is to say, (1) starting from the middle part of the ethmoid toward the front the curet bends toward the anterior wall of the front and outward, destroying the cells and the frontal bullae in the lateral region of the floor of the sinus; (2) starting again from the middle region of the ethmoid toward the sphenoid in the proximity of the anterior wall of the latter, it must turn inside as it penetrates the cavity. (g) The regions of the meatus medius and the concha, as important functional and morphologic elements, should be left intact. (h) The maxillary counteropening is necessary especially for postoperative drainage, leaving free the region of the meatus medius.

The transmaxillary method prevents altogether any morphologic and functional harm to the fossa nasalis. Furthermore, it avoids a mutilative operation which might have serious sensory and psychologic repercussions, which cannot be underestimated.

Psychiatric Hospital Care in São Paulo

São Paulo, with a population of more than 8 million, is putting into practice a plan of improvement of its psychiatric hospital service. The state government is building new hospitals and enlarging others in order to be able to transfer to good institutions patients who are not now receiving the proper psychiatric care. Dr. Edgard Pinto Cesar, director of the psychiatric service of the state of São Paulo, points out that the measures undertaken by the state will make it possible to

give proper care to mental patients who otherwise would miss the specialized medical treatment during the most favorable phase of the illness. Data of the Juquary Psychiatric State Hospital reveal that up to 75 per cent of the patients show decided improvement if treated in the early stages. Only 10 per cent of cases given treatment in the late stages show improvement. Dr. Pinto Cesar hopes that by next October it will be possible to hospitalize all mental cases in the state. Two new psychiatric hospitals and a new wing in the Juquary Hospital will add 1,500 beds: 300 in Juquary, 600 in the St. Theresa Hospital at Ribeirão Preto and 600 in the Pinel Hospital of the city of São Paulo. The plan provides for 1,000 more beds to become available in the course of 1946.

Personal

Dr. Orestes Rossetto, associate professor of physiology at the University of São Paulo, has been appointed professor ad interim to substitute for Dr. C. Moura Campos, who left for the United States to visit several medical institutions.

Dr. Edmundo de Vasconcellos, professor of surgery at the University of São Paulo, is now in the United States as a fellow of the Blaire House of Washington, D. C. Dr. Vasconcellos is the originator of special technique for the surgical treatment of cancer of the larynx and the esophagus and the author of several textbooks on surgery well known in Brazil. His book on modern methods of amputations has been published in English.

To Lieut. Col. Benjamin Gonçalves, assistant to the surgeon general of the Brazilian army, has been awarded the medal of Military Merit for special and valuable services.

Dr. Jorge S. Marsillac of the division of cancer of the National Department of Health and a practitioner of cancerology at Rio de Janeiro, has just arrived from the United States, where he was occupied for sixteen months as a fellow of the Memorial Hospital, New York.

Marriages

CHARLES MATTHEWS STRATEMAN, White Plains, N. Y., to Lieut. Ingrid Helen Leire of New York in Eibach, Germany, July 23.

FRANCIS RITTENHOUSE SOUDER, Souderton, Pa., to Miss Marian Rita Parker of Pen Argyl in Philadelphia recently.

LEON LOUIS BERNIS, Philadelphia, to First Lieut. Mildred Vivian Groh of Wilkes-Barre, Pa., August 19.

MAX BAUMEISTER JR., Norfolk, Va., to Miss Nancy Lydia Makovsky of Prince George, September 1.

JOHN EDWARD FLYNN, Tryon, N. C., to Miss Anne Frances Redmond of New York, September 1.

LEON WALLACE to Miss Fern Barbara Wixen, both of Los Angeles, in New York, September 14.

HOWARD A. SPINDLER, Rochester, N. Y., to Miss Barbara Hayes Smith of Sheds, August 24.

EDWARD T. EDWARDS JR. to Miss Mary Jane Decker, both of Vincennes, Ind., June 30.

JAY DURAND, Seattle, to Mrs. Gertrude Huntley Green of Vancouver, B. C., recently.

ELI N. BERNSTEIN, Detroit, to Lieut. Marjorie O. Boyd in Oxford, England, May 2.

BRANCH CRAIG JR., El Paso, Texas, to Miss Jean McCracken of Joliet, Ill., August 18.

MILTON ERNEST BAKER, Minneapolis, to Miss Ilene Godfrey of St. Paul, August 13.

FRANK STUART RYLBSON, Detroit, to Miss Ann LeClear in Chicago, August 7.

ISRAEL H. LAVINE, Melrose, Wis., to Miss Harriet Rosen of Sparta recently.

PAUL THORPE LOWRY, Price, Utah, to Miss Jeanette Kraemer recently.

Deaths

Smith Ely Jelliffe ♂ noted psychiatrist, died September 25 at his summer home near Hulets Landing, Lake George, N. Y. Dr. Jelliffe was born in New York Oct. 27, 1866. He graduated at the Columbia University College of Physicians and Surgeons, New York, in 1889, subsequently receiving his Ph.D. and A.M. degrees. He served an internship at St. Mary's Hospital, Brooklyn.

In 1896, while at the Binghamton State Hospital, he met Dr. William A. White and thus began a long professional friendship. In addition to conducting a large private practice, Dr. Jelliffe was clinical professor of mental diseases at Fordham University from 1907 to 1912; instructor in materia medica and therapeutics from 1903 to 1907 and professor of pharmacognosy and technical microscopy from 1897 to 1907 at the Columbia University College of Pharmacy, and adjunct professor of diseases of the mental and nervous system at the Post-Graduate Medical School and Hospital from 1911 to 1917. He was visiting neurologist at the City Hospital from 1903 to 1913 and at the time of his death was consulting neurologist at the Manhattan State and Kings Park hospitals.

He held membership in numerous societies, including the American Psychiatric Association, Philadelphia Neurological Society and the New York Academy of Medicine. He had been vice president and president of the American Neurological Association; he also had been president of the New York Neurological Society, American Psychopathological Association and the American Psycho-Analytic Society. He was an Affiliate Fellow of the American Medical Association and a specialist certified by the American Board of Psychiatry and Neurology, Inc. In addition he was a member of many foreign groups.

A man of prodigious energy, Dr. Jelliffe's career included many activities. He was a prolific writer of medical articles and the author of a number of textbooks. In 1938 a celebration was held to observe his thirty-fifth anniversary as editor of the *Journal of Nervous and Mental Disease*, a position which he held until recently. From 1913 until recently he held a similar position with the *Psychoanalytic Review*. He and Dr. White formerly edited the *Nervous and Mental Monograph Series*. In 1941 Dr. Jelliffe gave his library of fifteen thousand volumes and more than twenty-five thousand reprints on nervous and mental diseases to the Neuro-Psychiatric Institute of Hartford Retreat, Hartford. The collection was said to be one of the most complete in the world. He was editor of the *Medical News* in New York from 1900 to 1905 and associate editor of the *New York Medical Journal* from 1905 to 1909.

His versatility, his genius as a writer and teacher and his dynamic character combined to give him a position of leadership in each of the many fields to which he devoted his efforts.

Isidore Friesner ♂ Katonah, N. Y.; Gross Medical College, Denver, 1901; served as president and secretary of the American Otolological Society; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otolological Society; fellow of the American College of Surgeons; joined the medical staff of the Mount Sinai Hospital, New York, in 1920 and became otologist to the hospital a year later; president of the medical board from 1927 to 1938; under his direction of the department of otology, the training of residents in this field was started at the hospital; one of the first to recognize the importance of microscopic studies in diseases of the ear and responsible for the establishment at the hospital of a histopathologic department and laboratory facilities in connection with otology in 1928; on April 27, 1944 a portrait of him was presented to the hospital in commemoration of his seventieth birthday and as a tribute to his twenty-four years of service at Mount Sinai and to his pioneering work in establishing the relation of otology to general medicine; associated with the Bronx and Beth David hospitals in New York, Beth Moses and Methodist hospitals in Brooklyn, St. Joseph's Hospital in Far Rockaway and the Flushing (N. Y.) Hospital; specialist certified by the American Board of Otolaryngology; co-author of "Labyrinth" and "Cerebellar Abcess"; died September 8, aged 71, of coronary thrombosis.

William Avery Groat ♂ Syracuse, N. Y.; Syracuse University College of Medicine, 1900; member of the House of Delegates of the American Medical Association in 1939, 1940 and 1942; member of the American Association of Immunologists, American Association for the Study of Goiter, American Society of Clinical Pathologists and the Association for the Study of Internal Secretions; past president of the Medical Society of the State of New York and its fifth district branch;

at one time president of the Syracuse Academy of Medicine; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; served as professor of clinical pathology and medical jurisprudence at his alma mater, where he had been a trustee of the university and a member of its advisory board on athletics; served during World War I; lieutenant colonel, Medical Officers Reserve Corps, at the time of his death; had been associated with the City Hospital, Syracuse Memorial Hospital, St. Joseph Hospital and Hospital of the Good Shepherd; served as chairman of the advisory committee of the city health department; member of the management committee of the *New York State Journal of Medicine*; died September 9, aged 68, of chronic myocarditis and cerebral arteriosclerosis.

Charles Gilmore Kerley ♂ New York; University of the City of New York Medical Department, 1888; for many years professor of pediatrics and later emeritus at the New York Polyclinic Medical School and Hospital; specialist certified by the American Board of Pediatrics, Inc.; member and past president of the American Pediatric Society and the New York County Medical Society; fellow of the New York Academy of Medicine; member of the American Academy of Pediatrics; consulting pediatrician to Babies' Hospital and Hospital for Joint Diseases in New York, St. John's Hospital in Yonkers, Tarrytown (N. Y.) Hospital, Methodist Hospital in Brooklyn, Greenwich (Conn.) Hospital, Vassar Hospital, Poughkeepsie, N. Y., Fitkin Memorial Hospital, Neptune, N. J., Wassaic (N. Y.) State School, Mary McClellan Hospital, Cambridge, N. Y., and the Sharon (Conn.) Hospital; author of "Short Talks with Young Mothers," 1902, 1910, 1916 and 1925; "Practice of Pediatrics," 1914, 1918 and 1924; "Treatment of Diseases of Children," 1907 and 1909; "What Every Mother Should Know," 1915; "Digestive Disturbances in Infants and Children," 1924, and a novel, "Where is My Mother," in 1933; died September 7, aged 82, of heart disease.

Kenneth Clark Strong, Los Angeles; Stanford University School of Medicine, San Francisco, 1932; member of the American Medical Association and the American Society of Clinical Pathologists; diplomate of the National Board of Medical Examiners; specialist certified by the American Board of Pathology, Inc.; interned at the San Francisco Hospital; served as resident physician at the Presbyterian Hospital and Shoen Hospital for Women in New York; at one time on the faculties of Columbia University in New York and the Long Island College of Medicine in Brooklyn; served as director of laboratories at St. Francis Hospital in San Francisco and as consulting pathologist for the Veterans Administration facility; formerly affiliated with the division of laboratories and research, New York State Department of Health in Albany; began active duty as a major in the medical corps, Army of the United States, on Sept. 15, 1942 and service terminated January 1944 for physical disqualification; died July 3, aged 41, of heart disease.

George Rubin, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; member of the American Medical Association; formerly fellow in pathology at Rush Medical College, University of Chicago; served as medicolegal counsel for the corporation counsel's office in the city of Chicago; attending physician on the medical staff of the Jewish Old People's Home, North Chicago Hospital, Michael Reese Dispensary, Mount Sinai Hospital and the Chicago Tuberculosis Institute; a captain in the medical corps of the U. S. Army during World War I; captain, medical reserve corps, U. S. Army, not on active duty; delegate to the International Medical Congress in Paris in 1900; died in the Michael Reese Hospital July 15, aged 68, of carcinoma of the liver.

George Edwin McPherson ♂ Amherst, Mass.; Baltimore Medical College, 1904; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association and the American Association on Mental Deficiency; member and formerly vice president of the New England Society of Psychiatry; served during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; assistant superintendent of the Foxboro State Hospital, Foxboro, 1914-1915 and the Medfield State Hospital in Medfield from 1916 to 1921; assistant executive officer, Boston Psychopathic Hospital, 1915-1916; for many years superintendent of the Belchertown State Hospital in Belchertown; died June 16, aged 68, of coronary thrombosis.

Elizabeth Leiper Martin, Blairstown, N. J.; Western Pennsylvania Medical College, Pittsburgh, 1902; member of the American Psychiatric Association; at one time physician on the staff of the Margaret Morrison College of the Carnegie

Institute of Technology and during the same period had charge of women at the University of Pittsburgh; interned at the Western Pennsylvania Hospital in Pittsburgh; served as resident physician at the Friends Hospital in Philadelphia and later took a similar position at Butler Hospital in Providence, R. I.; served as head of the mental hygiene service at Wellesley College and Pembroke College in Brown University; died in the Newton Memorial Hospital, Newton, September 8, aged 73, of generalized arteriosclerosis, and myocardial degeneration.

Toliver Moore McDuffee ☉ Manatee, Fla.; University of Tennessee Medical Department, Nashville, 1899; past president of the Florida Medical Association, the Florida Railway Surgeons Association and the Manatee County Medical Society; served as the medical member of the county draft board during World War I; twice mayor of Manatee; from 1917 to 1925 chairman of the county school board, which about a year ago named the Manatee Junior High School the McDuffee School as a mark of honor for his public services; for many years surgeon for the Seaboard Air Line Railway; county physician; died June 15, aged 79, of Parkinson's disease.

Andrew Benjamin Albritton, Wildwood, Fla.; University of Georgia Medical Department, Augusta, 1912; member of the American Medical Association; died May 3, aged 62, of cardiovascular disease and diabetes mellitus.

Harry Lewis Aldrich ☉ Caney, Kan.; Hering Medical College, Chicago, 1902; vice president, past president and for many years member of the state board of health; in 1915 state representative; for many years health officer; served as councilman and mayor of Caney; in recognition of his many years of service as a member of the state board of health was presented with a plaque by the board; died in the Washington County Memorial Hospital, Bartlesville, Okla., June 29, aged 76, of myocarditis.

Chester Arthur Ayres, Lorimor, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the American Medical Association; served as secretary of the Polk County Medical Society and the Seventh District Medical Society; at one time on the faculty of the Drake University College of Medicine in Des Moines; died in Centerville June 29, aged 64, of coronary thrombosis.

John Peter Boroszewski ☉ Buffalo; University of Buffalo School of Medicine, 1926; died in the Buffalo General Hospital June 22, aged 44, of toxic hepatitis.

Charles Alonzo Brown, Plymouth, Ind.; Homeopathic Medical College of Missouri, St. Louis, 1890; died June 18, aged 83, of coronary occlusion.

John F. Burkhalter, Claxton, Ga.; University of Georgia Medical Department, Augusta, 1911; served during World War I; died in Savannah May 6, aged 59, of coronary thrombosis.

Manning Skinner Daniels, Pomeroy, Ohio; Western Reserve University School of Medicine, Cleveland, 1925; member of the American Medical Association; died June 13, aged 46, of coronary thrombosis.

Charles G. Elmore, Omaha; University of Tennessee Medical Department, Nashville, 1888; for many years surgeon for the Chicago and Northwestern Railroad; died in St. Joseph Hospital May 31, aged 87, of prostatic hypertrophy.

Alice Lucretia Ernst, Clifton Springs, N. Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1888; formerly a missionary in India; died June 20, aged 84, of carcinoma of the gallbladder.

William Floyd Etter, Rogers, Texas; College of Physicians and Surgeons, Baltimore, 1892; member of the American Medical Association; local surgeon for the Santa Fe Railroad; city health officer of Rogers; died May 14, aged 77, of pneumonia following a cerebral hemorrhage.

Alfred Abraham Euster ☉ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1924; served on the staffs of the Jewish, Nazareth and Frankford hospitals; died in the Dufur Hospital, Ambler, May 20, aged 45.

Loren Ervin Grimes, Zanesville, Ohio; Starling-Ohio Medical College, Columbus, 1914; member of the American Medical Association; served as secretary-treasurer and vice president of the Muskingum County Academy of Medicine; on the staffs of the Good Samaritan and Bethesda hospitals; served as county coroner; died June 7, aged 57, of heart disease.

Daniel George Hersh, Lititz, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1886; died in the United Zion Home, Warwick Township, May 20, aged 79, of general arteriosclerosis.

Henry William Heuermann ☉ St. Louis; St. Louis University School of Medicine, 1904; on the staffs of the Lutheran and Alexian Brothers' hospitals; died June 29, aged 64, of cerebral hemorrhage.

William T. Hinton, Dacula, Ga.; Atlanta Medical College, 1894; member of the American Medical Association; died in the Emory University Hospital, Atlanta, May 10, aged 75, of arteriosclerosis.

William M. Holmes, Marionville, Mo.; St. Louis College of Physicians and Surgeons, 1893; member of the American Medical Association; died in Burbank, Calif., June 28, aged 82, of medullary depression, toxemia due to thrombus of abdominal aortic infarction and arteriosclerosis.

Claude Perry Jones, Detroit; Harvard Medical School, Boston, 1893; Boston University School of Medicine, 1905; served during World War I; formerly superintendent of the Ford Republic School for Boys in Farmington, Mich.; died in the Grace Hospital June 27, aged 75, of bronchopneumonia.

John Scott Kelso, Avalon, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1896; school physician; affiliated with the Suburban General Hospital in Bellevue, of which he had been one of the founders; died June 26, aged 79, of coronary occlusion.

Horace Louis Leiter, Cazenovia, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1903; member of the American Urological Association; for many years on the staff of the University Hospital in Syracuse; died in Boston June 21, aged 67, of carcinoma of the cecum with metastases.

Lester Winslow Lord, West Ossipee, N. H.; Baltimore Medical College, 1897; veteran of the Spanish-American War and World War I; died in Winter Park, Fla., June 23, aged 70, of cerebral hemorrhage and hypertension.

William Lyon Lowrie ☉ Tyrone, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1883; served on the staffs of the Altoona and Mercy hospitals in Altoona and the Philipsburg (Pa.) State Hospital; died May 21, aged 85, of arteriosclerosis.

William Read Martin, Charlotte C. H., Va.; University College of Medicine, Richmond, 1907; member of the American Medical Association; past president of the South Piedmont Medical Society; past president and secretary of the Charlotte County Medical Society; county health officer; since 1937 president of the Charlotte County Library Board; died in the University Hospital, Charlottesville, June 24, aged 62.

Irving E. Ozanne ☉ Neenah, Wis.; Dunham Medical College, Chicago, 1899; on the staff of the Theda Clark Memorial Hospital; died in the Wisconsin General Hospital, Madison, July 12, aged 79, of ruptured diverticulum.

William Harrison Powell, Sulphur, Okla.; Baylor University College of Medicine, Dallas, 1905; city physician of Sulphur for many years; died June 1, aged 72, of carcinoma of the gallbladder and liver.

John Edward Powers, Wilton, N. H.; University of Vermont College of Medicine, Burlington, 1922; member of the American Medical Association; served during World War I; on the staffs of St. Joseph's Hospital and the Memorial Hospital in Nashua, where he died July 16, aged 53, of cerebral hemorrhage.

Leighton P. Ravenscroft, Winfield, Kan. (licensed in Kansas in 1901); member of the American Medical Association; mayor of Winfield six times; died in the Newton Memorial Hospital June 12, aged 84, of chronic myocarditis.

David Robert Rodger, New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1888; member of the American Medical Association; served on the staffs of the Jamaica (N. Y.) Hospital and the Roosevelt Hospital; died July 4, aged 90, of generalized arteriosclerosis and gangrene of the legs.

Andrew William Marks Row, Marine City, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1896; died July 1, aged 69, of acute dilatation of the heart and asthma.

Rudolph George Schroth, Chicago; National Medical University, Chicago, 1904; member of the American Medical Association; died July 17, aged 68, of carcinoma of the stomach.

Walter Wesley Sessions ☉ Sumner, Ga.; Atlanta School of Medicine, 1911; honorary member of the Medical Association of Georgia; died May 21, aged 69, of chronic nephritis.

Jesse Shoup ☉ Washington, D. C.; Jefferson Medical College of Philadelphia, 1891; an associate of the American College of Physicians; served on the staffs of the Garfield and Doctors hospitals; died July 21, aged 80, of heart disease.

Samuel Gordon Sloan, Elmore, Ohio; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1924; served with the Canadian Expeditionary Forces during World War I; interned at St. Vincent's Hospital in Toledo; died July 3, aged 47, of cerebral hemorrhage.

Martin Luther Sowers, Far Rockaway, N. Y.; University College of Medicine, Richmond, 1913; specialist certified by the American Board of Otolaryngology; a captain in the medical corps of the U. S. Army overseas during World War I; member of the American Medical Association; served on the staffs of the New York Eye and Ear Infirmary, Neurological Institute and the Manhattan Eye, Ear and Throat Hospital, all of New York, and St. Joseph Hospital; drowned while swimming at Long Beach, July 27, aged 53.

Henry Steible, Hammond, Ind.; Jenner Medical College, Chicago, 1900; for many years police surgeon for the police department in Chicago, where he had been on the staff of the Alexian Brothers Hospital; died July 14, aged 69, of acute cardiac decompensation.

Robert Benjamin Stevenson, Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1912; member of the American Medical Association; a captain in the medical

Frank Curtis Titus, Toledo, Ohio; Illinois Medical College, Chicago, 1903; member of the Toledo Academy of Medicine, the American Urological Association and the American Medical Association; served during World War I; died July 14, aged 67, of coronary occlusion.

Mary A. Huban Traiser, Boston; Middlesex College of Medicine and Surgery, Cambridge, Mass., 1927; member of the staff of the Carney Hospital; died June 19, aged 65, of heart disease and chronic myocarditis.

William Wesley Ward @ Alexander, Ark.; University of Arkansas School of Medicine, Little Rock, 1902; held various offices in the Saline County Medical Society; served during World War I; school director and formerly mayor; died June 18, aged 75, of heart disease caused by asthma.

Arthur Weaver White @ Oklahoma City; Rush Medical College, Chicago, 1902; professor emeritus of clinical medicine at the University of Oklahoma School of Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served during World War I; member of staff St. Anthony Hospital; chief of clinical medicine and consultant in gastroenterology, University Associated Hospitals; died June 11, aged 68, of coronary occlusion.



MAJOR JOHN E. ADAMS
M. C., A. U. S., 1911-1944



CAPT. JULIUS A. HENE
M. C., A. U. S., 1908-1944



CAPT. WILLIAM D. DAVIS
M. C., A. U. S., 1913-1944

corps and chief of the laboratory staff at an Army hospital in Hot Springs, N. C., during World War I; on the staffs of the White Cross and Mercy hospitals; died in the Mount Carmel Hospital July 13, aged 55, of coronary occlusion.

William H. Swain @ Martin, Ga.; Gate City Medical College, Dallas, Texas, 1907; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1914; commissioner of Stephens County for many years; on the staff of the Stephens County Hospital, Toccoa, where he died May 20, aged 76.

Elizabeth Wiltshire Wright @ Mount Vernon, N. Y.; Laura Memorial Woman's Medical College, Cincinnati, 1903; Boston University School of Medicine, 1909; died in Hawthorne, July 3, aged 69, of carcinoma of the breast.

Charles Henry Zander, Oakland, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1909; member of the American Medical Association; died in the Providence Hospital June 15, aged 65, of myocardial infarction and arteriosclerosis.

KILLED IN ACTION

John Edwin Adams, Los Angeles; University of Virginia Department of Medicine, Charlottesville, 1936; interned at the Virginia Mason Hospital in Seattle; served a residency at the University of Virginia Hospital, Charlottesville, the Children's Hospital and Los Angeles County Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on Aug. 1, 1941; assigned to Hoff General Hospital in Santa Barbara; promoted to major; killed in action in the North African area Jan. 24, 1944, aged 32.

Julius A. Hene, New York; Medizinische Fakultät der Universität Wien, Vienna, Austria, 1936; interned at the Harlem Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States,

on July 1, 1942; assigned to 10th Medical Battalion, Camp Hale, Pando, Colo.; later promoted to captain; killed in action in Stalag, Germany, Dec. 23, 1944, as the result of an air attack, aged 36.

William Dewey Davis, Pomona, Calif.; University of Chicago, the School of Medicine, 1939; member of the American Medical Association; interned at the Los Angeles County Hospital in Los Angeles; diplomate of the National Board of Medical Examiners; began active duty as a first lieutenant in the medical corps, Army of the United States, on May 15, 1942; later promoted to captain; killed in action in the Southwest Pacific area Aug. 2, 1944, aged 30.

Correspondence

UNCONTROLLED USE OF ORAL AMEBICIDES

To the Editors: The article in *The Journal*, August 11, by Silverman and Leslie on the "Toxic Effects of Diiodoquin" serves as a timely warning against what I believe is an increasing tendency to the somewhat careless and uncontrolled use of the oral amebicides. During the past year I have seen or heard of several amebiasis patients who, because of recurrent attacks of diarrhea or dysentery, have been taking repeated three week courses of an orally administered amebicide. Rest intervals between treatments have seldom been more than a week or two because of the recurrence of symptoms. Last month I saw 1 of these patients who sought relief mainly for an extensive dermatitis covering the entire body and diagnosed by several competent dermatologists as a purpuric infection probably contracted in India five years ago. Three years ago, in Iran, an attack of dysentery was diagnosed as being due to *Endamoeba histolytica*. Since then he has had repeated attacks of dysentery and, for the past year on the recommendation of several physicians, has been taking diiodoquin almost continuously. His dermatitis had been getting much worse during the past four months. I stopped the diiodoquin and substituted carbarsone plus vitamin therapy, and within three weeks the dermatitis had greatly lessened and the dysentery was relieved.

Many practitioners are now, or soon will be, for the first time faced with the problem of treating amebiasis. Undoubtedly the incidence of amebiasis in this country will be greatly increased with the return of troops and civilian workers from the tropics. While many of these individuals infected with *E. histolytica* have been properly diagnosed and treated, some will remain un cured and suffer relapses. These and others as yet undiagnosed, who may develop symptoms months or years after their original infection, will serve as carriers for the spread of amebiasis. Most authorities recognize the seriousness of this type of disease and agree that amebiasis is characterized by (a) difficulty in eradication of the ameba, (b) rapid tendency of *E. histolytica* to become "drug fast" to a specific amebicide, (c) chronicity of symptoms with frequent relapses of diarrhea or dysentery, (d) a large number of individuals who do not have diarrhea or dysentery but suffer from vague gastrointestinal symptoms and (e) the asymptomatic carrier of *E. histolytica*. The complete eradication of the ameba from the human host is difficult and requires well controlled therapy and a careful follow up study of the stools over a suitable period of time to determine cure.

The physician who undertakes to treat amebiasis must, first of all, be sure of the diagnosis. Too many physicians rely on their own ability to examine the patient's stool and too often imagine that cysts of *E. histolytica* are found when actually they see plant cells, yeasts or, rarely, nonpathogenic cysts. Also few clinical laboratory technicians should be entrusted with the responsibility of diagnosing stool specimens for *E. histolytica*. I recall 2 cases of chronic diarrhea diagnosed by a clinical laboratory as amebiasis, which were accordingly treated for this for several months before the correct diagnosis of cancer of the bowel was made. On the other hand, amebic infection should not be ruled out until several properly obtained and competently examined stools have been checked.

Several effective amebicides are now available. The Phenylcopol Beta chinolone (Vatium), carbarsone and emetine hydrochloride and N, N, R, resorcinol, chloroquin, diiodoquin and acetasone (Tovarsol) as amebicides. Since all these drugs are

potentially toxic and capable of producing untoward reactions, their use should be governed by certain definite rules: (a) treatment should be limited to a short period of from ten to fourteen days; (b) a rest period of at least two or three weeks should be followed and the stools found positive for the amebias before another course of treatment with one of the oral amebicides is started; (c) the iodine containing compounds chinolone, vatium and diiodoquin and the arsenicals carbarsone and acetasone are contraindicated in patients showing or suspected of having liver damage or known to have drug sensitivity; (d) none of these drugs should be used empirically for the treatment of a non amebic diarrhea; (e) emetine hydrochloride should not be used in weakened individuals or those with heart damage, because this drug has a definite toxic action on the heart and neuromuscular system. Of these drugs, emetine has been used the longest because it effectively stops the dysentery in a day or two. However, because of its toxic effects, many clinicians now hesitate to use it. They prefer to tide over the acutely ill patient suffering from a rapidly dehydrating and exhausting dysentery by the judicious use of *lindanum* or *paraperone* until the orally administered amebicides have had time to accomplish relief of symptoms. In such cases, in addition to correcting the loss of fluids from the body, prompt attention should be given to treating the *acanthamoeba* which is usually present.

With respect to the toxicity of diiodoquin and the iodine containing amebicides, Silverman and Leslie apparently have overlooked our recent articles on this subject (David, N. A.; Phatak, N. M., and Jener, E. R.; *J. Pharmacol. & Exper. Therap.*, 72:11 [May] 1941; *Am. J. Trop. Med.*, 24:20 [Jan.], 1942). In this work we were able to establish a definite L.D.₅₀ for diiodoquin in guinea pigs and kittens, which we attributed to the variable absorption of the drug. However, the fact that some of the treated animals died from each of the various orally administered doses used (from 50 mg. per kilogram to 2 Gm. per kilogram) indicated that sufficient absorption took place to kill the animal. Further proof that it is possible to absorb appreciable amounts of iodine when diiodoquin is orally administered was shown by studies of the blood iodine level in man before and after treatment with a modified course of diiodoquin. In 10 persons the normal blood iodine ranged from 5.3 to 12.02 micrograms per hundred cubic centimeters and, following diiodoquin administration of one tablet three times daily for ten days, increases in the blood iodine up to 35.6 to 457.25 micrograms per hundred cubic centimeters were noted. Four of these patients complained of the onset of pruritus and/or anal irritation soon after the start of treatment, 2 of postile "discomfort" and 1 of an increased sense of skin warmth. About the same results and symptoms were noted in another group of 9 students given the usual ten day course of vatium, although individual variations in the increase of blood iodine levels were less. It should be noted that we administered diiodoquin in doses of one tablet only three times daily for ten days rather than in the recommended therapeutic dosage of from seven to ten tablets daily for fifteen to twenty days. This larger dosage and prolongation of treatment would undoubtedly increase the degree of iodine absorption and the likelihood of toxic symptoms. I feel that if a drug is an effective amebicide it should accomplish its purpose within a period of ten days. Since we found that iodine absorption does occur after diiodoquin as well as vatium and chinolone (unpublished results) and that these drugs can kill animals at certain dosages and cause untoward symptoms in man, the physician should prescribe these compounds with some respect.

NORMAN A. DAVID, M.D., Portland, Ore.,
Professor of Pharmacology, University of Oregon
Medical School.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery 15:1-32 (July) 1945

- Breast Feeding. Ruth R. Berrey—p. 1.
Epiploic Appendage: Its Role in Production of Acute Abdominal Symptoms. W. C. Simpson—p. 3.
Effects of Arteriovenous Fistula on Cardiovascular System: Report of Case of Arteriovenous Fistula of Common Carotid Artery and Internal Jugular Vein. D. C. Donald and B. Meadows—p. 5.

15:33-88 (Aug.) 1945

- Pregnancy Complicating Chronic Conditions. O. R. Grimes—p. 33.
General Care of Infant During First Year. J. H. Baumhauer—p. 38.
Intraocular Steel Particles. Report of 5 Successive Cases. G. Staver—p. 41.

American Journal of Clinical Pathology, Baltimore 15:215-262 (June) 1945

- Portal Cirrhosis of Liver: Review of 250 Necropsies with References to Sex Differences. D. M. Spain—p. 215.
Measurement of Serum Total Base. F. W. Sunderman—p. 219.
*Gelatin Solution as Plasma Substitute. F. Steigmann, K. A. Meyer, D. D. Kozoll, B. W. Volk and H. Popper—p. 223.
Histogenesis of Compound Granular Corpuscles in Response to Cerebral Trauma: Experimental Study. W. B. Dublin—p. 228.
Diabetes in Rat Caused by Introduction of Alloxan into Alimentary Canal. J. A. Rubin and K. Yarduman—p. 230.
*Inhibitive Effect of Gastric Lavage on Tubercle Bacilli: Preliminary Report. V. M. Schwartz—p. 234.
Fatty Tissues: Normal Anatomy and Changes in Obesity (Review). S. M. Rabson—p. 240.
Leukemia Complicated by Cancer: Report of Case. M. Berk and E. R. Movitt—p. 246.
Sudden Death from Complete Rupture of Descending Thoracic Aorta with True Fusiform Aneurysm, Caused by Medionecrosis Cystica. G. Strassmann and W. M. Kojikov—p. 250.

Gelatin Solution as Plasma Substitute.—Steigmann and his collaborators studied the effects observed on hospital controls from administering gelatin solutions in different strengths and different admixtures regarding (1) hemodilution following one or more infusions, (2) changes in the blood, (3) liver and kidney function and (4) toxic reactions. The gelatin used in this study was supplied ready for use in solutions of 5 per cent and 2.5 per cent gelatin in isotonic solution of sodium chloride, 5 per cent gelatin in dextrose and 5 per cent gelatin in isotonic solution of sodium chloride reinforced with tryptophan, tyrosine, methionine and leucine. The gelatin solution was prepared from calcium gelatinate. The solutions were used in 82 hospital controls, who received 169 liters of gelatin solution during 130 infusions, each patient receiving from 1 to 10 liters. All infusions were given intravenously. Amounts from 2,000 to 10,000 cc. were tolerated without ill effects. Thrombosis of and pain in veins into which gelatin is repeatedly given were not uncommon. Some reactions were obviated by boiling all rubber tubing after infusion in alkaline solution. No untoward results following the administration of gelatin solution were observed in regard to the liver, kidney or hemopoietic system except for an increase in the sedimentation rate of red blood cells. The fact that gelatin is nonantigenic makes this substance promising as a plasma substitute.

Inhibitive Effect of Gastric Lavage on Tubercle Bacilli.—Schwartz reports studies that were carried out at Glen Lake Sanatorium, Oak Terrace, Minn. It was found that substances are present in many gastric lavages which can inhibit partially or completely the growth of tubercle bacilli. Incubation at 37 C. permits the inhibitory substances to act most readily,

but ice box temperatures do not prevent their action. False negative cultures and failure to infect guinea pigs may result if gastric contents are not treated and inoculated immediately, especially in those specimens which contain only a few bacilli. The practice of accumulating several specimens of gastric contents over a period of days and pooling the combined specimens should be discouraged, because results have shown that the time lapse between receipt and treatment for culture may offset any advantage gained by the additional specimens.

American Journal of Medical Sciences, Philadelphia 210:1-134 (July) 1945

- *Penicillin in Treatment of Pneumococcal, Meningococcal, Streptococcal and Staphylococcal Meningitis. W. L. White, F. D. Murphy, J. S. Lockwood and H. T. Flippin—p. 1.
Infective Hepatitis, with Special Reference to Prognosis. J. B. Rennie—p. 18.
*Oral Administration to Volunteers of Feces from Patients with Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis. J. R. Neefe, J. Stokes Jr. and J. G. Reinhold—p. 29.
Lymph Nodes in Leishmaniasis: Report of 2 Cases. D. M. Angeline, T. R. Hamilton, F. G. Wallace and J. B. Hazard—p. 33.
*Mite or Scrub Typhus: Clinical and Laboratory Study of 64 Cases. T. E. Machella and J. S. Forrester—p. 38.
Toxicity of Streptothricin. G. Rake, Dorothy Hamre, T. Kavanagh, W. L. Koerber and R. Donovan—p. 61.
Klebsiella Pneumoniae Bacteremia Successfully Treated with Penicillin. J. L. Kobacker and G. B. Mehlin—p. 66.
Rickets in Iceland. N. Dungal—p. 70.
Hemorrhagic Telangiectasia with Pulmonary Artery Aneurysm: Case Report. R. W. Rundles—p. 76.
Tiselius Electrophoresis Studies of Plasma Proteins in Addison's Disease. E. P. McCullagh and L. A. Lewis—p. 81.
Incidence, Causes and Intermittence of Proteinuria in Young Men. I. J. Wolman—p. 86.
Electrocardiographic Changes Associated with Lesions in Deeper Layers of Myocardium: Experimental Study. R. D. Pruitt, A. R. Barnes and H. E. Essex—p. 100.

Penicillin in Meningitis.—This study by White and his collaborators of 71 patients with acute meningitis treated with penicillin, of whom 50 had pneumococcal, 12 meningococcal, 5 streptococcal and 4 staphylococcal meningitis, was made possible by the cooperation of a large number of physicians in eighteen hospitals in the Philadelphia area. Penicillin was often effective in pneumococcal, meningococcal and streptococcal meningitis after adequate sulfonamide therapy had failed to produce the desired response. In pneumococcal meningitis the presence of subcranial foci and advanced age were cardinal factors in influencing the mortality rate. Intrathecal penicillin therapy does not appear harmful. Intracisternal injection seems to be the most effective route of intrathecal administration. Although penicillin administered by the systemic route alone may have a curative effect in selected cases, it seems preferable to supplement systemic administration with intrathecal injections of the drug by the cisternal route. The superiority of penicillin over other forms of chemotherapy is most clearly demonstrated in staphylococcal meningitis. It is likely that best results will be obtained through the use of a combination of penicillin and sulfonamides in systemic therapy, and penicillin intrathecally.

Transmission Experiments with Feces in Infectious Hepatitis.—Transmission experiments in human volunteers have shown that the causative agent of infectious (epidemic) hepatitis may be present in the feces of persons with the active disease. Neefe and his associates administered orally pooled specimens of feces from 6 subjects during various stages of homologous serum hepatitis to 19 healthy volunteers. None of these showed evidence of hepatitis during a four to six month period of observation, suggesting that the causative agent either was not present in the feces or was not active when administered by the gastrointestinal route. Pooled specimens of feces from patients with infectious (epidemic) hepatitis were administered orally to healthy volunteers. Hepatitis occurred within twenty-six days in 6 of 12 subjects, confirming the observation of others that the causative agent is present in the feces of patients with the active disease. Pooled specimens of feces obtained from 2 volunteers during the preicteric and icteric stages of experimentally produced infectious (epidemic) hepatitis were administered orally to 7 healthy volunteers. One developed the disease after twenty-six days, indicating that the agent was present in feces obtained during the active disease. Pooled specimens of feces from the same 2 volunteers three

weeks after the disappearance of jaundice also were administered orally to 7 healthy volunteers. None developed hepatitis during a four month period of observation, suggesting that the agent was not present in the feces three weeks after the disappearance of icterus.

Tsutsugamushi Disease.—Machella and Forrester present clinical and laboratory data on a series of 24 American and 40 Chinese patients who had a disease which appeared to be identical with tsutsugamushi or Japanese river fever, also called mite or "scrub" typhus. The exact incubation period was rarely determined, all of the patients admitted having been in the jungle during the several weeks prior to the onset of the illness. A typical primary ulcer was present in 43 of 64 cases. The initial lesion began as a red painless macule, which in a few days became papular. A small excoriation then appeared on the dome of the papule, which soon became deeper and filled with a black eschar. The most striking feature of the patient's general appearance was apathy. The average duration of fever was 17.4 days. The blood pressure was usually low during the course of the febrile period and then gradually came up to normal during the period of convalescence. A typical rash was noted in 33 of 63 cases. The spleen was palpable in 35 of the 40 patients. Regional lymphadenopathy was demonstrable in all but 4 of those patients in whom a primary eschar was present. Generalized peripheral lymphadenopathy was demonstrated in 60 of 64 patients. Characteristic changes in the eye-grounds were found in a large percentage of the patients. Cough was also present in over half of the patients. Roentgen examination of the chest revealed the presence of pathologic changes in 24 of 40 patients. The nature and duration of positive Weil-Felix reaction (proteus OXK) are described, and a difference between the OXK titer in patients with and without primary ulcers is pointed out. Azotemia was noted during the second or third week of fever. One of the patients in the series appeared to undergo a true relapse. The mortality in the series was 1.5 per cent.

American Review of Tuberculosis, New York

52:1-88 (July) 1945

- *Transient Focal Pulmonary Edema. C. B. Peirce, E. F. Crutchlow, A. T. Henderson and J. W. McKay.—p. 1.
- *Bed Rest in Tuberculosis: Its Dangers and Properties. W. M. Peck and H. S. Willis.—p. 15.
- Bronchography in Pulmonary Tuberculosis: V. Artificial Pneumothorax. B. A. Dormer, J. Friedlander and F. J. Wiles.—p. 21.
- Acid Fast Bacilli in Nontuberculous Pulmonary Disease. R. A. S. Cory.—p. 36.
- Incidence of Tuberculosis in Japanese Americans: A Study of Homogeneous Racial Group. H. E. Bass and G. D. C. Thompson.—p. 46.
- Tuberculosis Survey of Food Handlers on Island of Oahu. J. E. Ferkany and R. K. C. Lee.—p. 51.
- Enzymes as Factors in Resistance to Tuberculosis: V. Cateptic Enzymes. B. Gerstl, R. Tennant and O. Pelzman.—p. 58.
- Specific Cytotoxic Action of Tuberculin: Reaction of Tissues from Animals Sensitized with Heat Killed Tubercle Bacilli. Dorothy Heilman, W. H. Feldman and F. C. Mann.—p. 65.
- *Chemotherapy in Experimental Tuberculosis: Tests in Vitro and in Vivo with Different Types of Agents. W. C. Cutting, L. P. Gehhardt, F. Proeschner and E. Durrum, with technical assistance of H. B. Moy.—p. 73.
- Sulfadiazine in Experimental Tuberculosis. C. R. Smith and F. W. Oechslin.—p. 83.

Transient Focal Pulmonary Edema.—Peirce and his associates point out that a considerable number of the reported cases and also cases in their series presented clinical symptoms and signs compatible with pulmonary tuberculosis: cough, slight to moderate malaise, loss of weight, changes in physical findings, some crepitant rales, history of exposure or indication of previous tuberculosis, some with mildly positive skin reactions. In the series observed by the authors, the x-ray studies presented sufficient characteristics to differentiate their cases from pulmonary tuberculosis. The distribution is not that commonly manifest in tuberculosis. The individual foci are usually associated with the lesser anatomic divisions or segments of the lungs but do not have a true lobular configuration. Nor is there an associated peribronchovascular infiltration toward the lung root. The amorphous character of the individual focus, the rapid migration from one portion of the lung to another without the use of connecting pathways, the transient nature with short duration are notable features. The texture of the individual roentgenographic shadow is that of a haze or cloud,

sometimes so confluent over so great an amount of lung tissue as to suggest consolidation; but none have been actually dense enough to be so considered. Any atypical, evanescent, parenchymal or peritubercular shadow should be regarded with caution, especially when it does not conform to a common anatomic pattern. Such a shadow should be observed frequently over a few days to weeks. These evanescent and variable areas of increased pulmonary density are focal zones of transient pulmonary edema, probably associated with an allergic state; they are local manifestations of the individual's response to an allergen elsewhere. It is possible that, if such a state should persist long enough, a pattern suggestive of periarthritis nodosa might be established. Eosinophilia and roentgenographic pulmonary involvement are out of proportion to the clinical evidence of disease. Extreme care must be exercised to ensure that no such cases are stigmatized with the diagnosis of tuberculosis on one roentgenographic observation. Careful clinical history and physical examination are still required for diagnosis.

Bed Rest in Tuberculosis.—According to Peck and Willis, pulmonary infarction does not appear to be a danger of great consequence to the tuberculous patient who is kept at bed rest. Pulmonary infarction and embolism of the pulmonary artery were found in only 1.5 per cent of 751 necropsies on tuberculous persons. Other dangers which may be associated with bed rest in this disease are the failure (1) to obtain adequate pulmonary drainage, (2) to meet the emotional maladjustment so often present and (3) to correlate properly collapse therapy and a bed rest regimen. The evils which adhere to bed rest are incident to its mode of application. Good bed rest will avoid these dangers and retain its full therapeutic value. Poor bed rest is often therapeutically inert and can be aptly called bed fatigue. Proper bed rest should include mental repose, muscular relaxation and adequate pulmonary drainage and should not be thought of as mere regimentation in recumbency. Bed rest is inherently valuable but unreliable when administered indifferently. It warrants constant, critical attention by the physician in order to insure good results.

Chemotherapy in Experimental Tuberculosis.—Of 300 compounds tested in vitro as possible chemotherapeutic agents against *Mycobacterium tuberculosis* var. *hominis*, 39 of the more promising were tested in guinea pigs inoculated with tubercle bacilli. Although slight and irregular suppression of the infection occurred with neosynephrin sulfathiazolate, diasone and a combination of sulfadiazine and propylene glycol, in no case did this appear adequate to justify clinical trials. The beneficial results obtained have all been characterized as retardations of the disease and not as cures, although in occasional animals all lesions appeared to have been totally suppressed. Cutting and his associates think that more striking results of other investigators may be due in part to the use of much smaller inocula of tubercle bacilli and older, and hence more resistant, guinea pigs.

Anesthesiology, New York

6:337-448 (July) 1945

- Ether Anesthesia with Improved Apparatus for Intrathoracic Operations Under Emergency Circumstances. W. Neff and S. Lind.—p. 337.
- Some Effects of Positive Pressure Respiration During Anesthesia. P. K. Knoefel, J. P. Holt, C. Quinn, A. M. Ambrose and R. Shore.—p. 349.
- Orotracheal Anesthesia for Cheiloplasty. H. C. Slocum and C. R. Allen.—p. 355.
- Experience with Vinyl Plastic Endotracheal Tubes. R. A. Gordon and E. H. Ainslie.—p. 359.
- Peripheral Circulatory Reactions as Basis for Evaluating Anesthetic Agents. S. G. Hershey, B. W. Zweifach, R. Chambers and E. A. Roventine.—p. 362.
- Pentothal Sodium: Its Use in Continuous Intravenous Anesthesia and Method of Preserving It in Solution. E. J. Stevens.—p. 376.
- Use of Curare in Sodium Pentothal Nitrous Oxide-Oxygen Anesthesia. J. Brody.—p. 381.
- Anesthesia for Naval Air Personnel: Experiences at Naval Hospital. E. R. Ruzicka.—p. 385.
- *Pentothal Anesthesia. E. Damarjian.—p. 402.

Pentothal Anesthesia.—In an evacuation hospital where pentothal was administered to more than 400 patients, it comprised about 15 per cent of all the anesthetics given. Records were kept of 200 consecutive cases. Intravenous administration of pentothal is a valuable and safe anesthetic in experienced hands. The induction dosage is variable and has no direct relation to the amount required for maintenance of the anes-

thetia. Both the induction and maintenance requirements are diminished with morphine, nitrous oxide and block anesthesia. The anesthesia can be divided into two categories, "light pentothal" and "deep pentothal" anesthesia. Light pentothal should be used for simple surgical procedures. Deep pentothal usually abolishes deep reflexes such as laryngospasm. The temperature of the solution had no effect on the anesthesia. Solutions which had been stored for some time after preparation were as effective as freshly prepared solutions and were used without apparent harmful effects.

Annals of Allergy, Minneapolis

3:163-240 (May-June) 1945

- Brief Critic of Psychosomatics. C. H. Campbell.—p. 163.
Experimental Approach to Oral Treatment of Food Allergy: II. Immunologic Properties of Food Proteptans. E. Urbach, G. Jaggard and D. W. Crisman.—p. 172.
Combined Helium and Epinephrine Therapy. I. Wickner.—p. 187.
Diagnostic Value of Eosinophil in Allergic States. J. A. Mansmann.—p. 191.
Histaminic Cephalgia with Duodenal Ulcer. R. I. Alford and F. R. Whitehouse.—p. 200.
Asthma with Bronchial Infection Treated with Penicillin: Preliminary Report. V. J. Derbes and J. L. Wilson.—p. 204.
Urticaria Following Use of Protamine Zinc Insulin: Report of Case. R. F. Hughes and H. R. McAlister.—p. 207.

Histaminic Cephalgia with Duodenal Ulcer.—Alford and Whitehouse treated 50 cases of headache and found that 4 were typical of histaminic cephalgia as first described by Horton. One case of histaminic cephalgia presented an unusual complicating feature. A man aged 34 first noticed about fifteen years ago sharp, needle-like pain, localized to the region of the right eye. This pain lasted about an hour and came at any time of the day or night. The right eye watered and became severely injected, and the right nostril became obstructed. During this fifteen year period he had had free intervals as long as three months and then again suffered from as many as three headaches in twenty-four hours. About twelve years ago he noticed attacks of gnawing pain in the epigastrium for the first time. On a number of occasions he vomited coffee ground material and several times had vomited a cup of bright red blood. Tarry stools had been observed on a few occasions. The epigastric pain was relieved by soda and food. Hospitalization on an ulcer diet usually brought relief of gastrointestinal symptoms in about two weeks. Roentgenoscopic and roentgenographic examination showed a deformity of the duodenal cap, just beyond the pylorus, and a shadow suggestive of a small crater was seen in this area. Horton reported 10 cases of histaminic cephalgia complicated by acute duodenal ulcers with demonstrable crater formation. The authors studied the relationship between histaminic cephalgia and the duodenal ulcer in their patient. During several attacks of headache the acid curve was high, similar to a curve resulting from the injection of histamine. During periods free from headache, the acid curve showed a low acidity. Following treatment with histamine the headache and the ulcer crater both disappeared, with no change in the essential gastric secretory mechanism.

Archives of Dermatology and Syphilology, Chicago

52:1-74 (July) 1945

- Tropical Lichen Planus-like Disease. J. W. Bagby.—p. 1.
Army Air Forces Dermatology Program. J. R. Scholtz.—p. 6.
Dermatitis from Dehydration of Potatoes. S. M. Peck and H. C. Clare.—p. 9.
Urticaria from Perfume. S. J. Zakon and J. B. Kahn.—p. 11.
Penicillin in Treatment of Cutaneous Disease. A. G. Franks, W. L. Dobes and D. Romano.—p. 14.
Is Penicillin a Photosensitizing Agent? O. Canizares.—p. 17.
Mycosis Fungoides in the Negro. H. Sigel.—p. 18.
Dermatologic Practice in Station Hospital in Southern California: Comparison with Private Practice. E. Epstein.—p. 21.
Cutaneous Leishmaniasis (Oriental Sore): VI. Treatment with Quinacrine Hydrochloride. D. A. Berberian.—p. 26.
Impetigo Bullosa in Tropics. C. S. D'Avanzo.—p. 28.

Penicillin in Cutaneous Disease.—Franks and his associates used the sodium salt of penicillin in a solution that contained from 400 to 600 Oxford units per cubic centimeter. This was applied to the affected areas as a wet dressing, so that the lesions were constantly dampened with the penicillin solution. To prevent the solution from evaporating rapidly, the saturated

gauze was covered with oilcloth. For the intramuscular injections, 20,000 units of penicillin was mixed with 2 cc. of isotonic solution of sodium chloride. Penicillin was useful in the treatment of sycosis vulgaris, impetigo contagiosa and gonorrheal conjunctivitis when used locally. Whether penicillin was used intramuscularly or intravenously, it proved to be beneficial for sycosis vulgaris, pustular acne, Ludwig's angina and chronic cutaneous diseases complicated by secondary infection with pyogenic organisms. Penicillin therapy was of no value in psoriasis vulgaris, lichen planus, favus, lupus erythematosus, pemphigus foliaceus, and seborrheic and chronic fungous dermatitis.

Archives of Otolaryngology, Chicago

42:1-90 (July) 1945

- Penicillin in Treatment of Patients with Deep Infections of Neck. T. R. Gaines and M. B. Hatcher.—p. 1.
Local Use of Sulfathiazole in Mastoidectomy Wounds: Satisfactory Results Observed in 30 Patients. S. B. Burtoff.—p. 6.
Late Secondary Tonsillar Hemorrhage: I. Studies of Prothrombin and Vitamin K. H. Neivert.—p. 14.
Acetylsalicylic Acid, Probable Cause for Secondary Post-Tonsillectomy Hemorrhage: Preliminary Report. R. Singer.—p. 19.
Causes of Deafness in Fliers. E. P. Fowler Jr.—p. 21.
Introduction of Artistic Point of View in Regard to Rhinoplastic Diagnosis. J. Daley.—p. 33.
Slight Operative Injuries of Stapes: Histopathologic Study of Case. F. Altmann and J. G. Waltner.—p. 42.
Contributions to Plastic Surgery During 1944. L. A. Peer.—p. 56.

Late Secondary Tonsillar Hemorrhage.—Tonsillectomy and adenoidectomy are not infrequently complicated by secondary hemorrhage occurring generally on the sixth or the seventh day. Neivert learned that in Europe these secondary hemorrhages are much less frequent and the difference that seemed significant was that acetylsalicylic acid is extensively prescribed in this country, as it also is in Canada and England, whereas in central Europe aminopyrine is the drug of choice. Workers in the department of biochemistry of the Wisconsin Agricultural Experiment Station showed that salicylic acid and sodium salicylate induced hypoprothrombinemia in rats kept on a ration low in vitamin K. The animals could be protected against this action of salicylic acid by administration of a vitamin K preparation. Estimations of prothrombin time done on a large number of patients at the author's hospital revealed that in some subjects a daily dose of 2.4 Gm. of acetylsalicylic acid will produce an elevation in prothrombin time on the next day, whereas in others it will be much longer before a significant rise will be discernible—but such a rise will occur eventually. These studies afford corroboratory evidence that administration of salicylates results in hypoprothrombinemia. In view of the fact that acetylsalicylic acid, by virtue of its effectiveness and its comparative nontoxicity, is the most widely used analgesic, the author thought it advisable, rather than to eliminate it, to combine it with an agent which will counteract its effect on prothrombin. The water soluble vitamin K-like compound synkayvite (tetrasodium 2-methyl-1,4-naphthohydroquinone diphosphoric acid ester) prevents this undesirable side effect of acetylsalicylic acid. The combined acetylsalicylic acid and synkayvite medication was tried on a broader scale. Only 4 among 283 patients were troubled by late tonsillar bleeding. The author concludes that while in rare cases the cause of late post-tonsillectomy hemorrhage may be trauma, menstruation, infection, deficiency of vitamin C or some blood dyscrasia, observations suggest that one of the most important factors is a reduction in the prothrombin of the blood brought about by the use of acetylsalicylic acid or salicylates.

Acetylsalicylic Acid a Probable Cause of Secondary Hemorrhage After Tonsillectomy.—Singer points out that hemorrhages that occur on the sixth or seventh day after tonsillectomy are much less frequent in the clinics and hospitals of central Europe than they are here. A comparison in the pre-operative and postoperative regimens used in this country and abroad revealed only one significant difference. This was the administration in this country of acetylsalicylic acid to relieve postoperative pain. In central Europe acetylsalicylic acid is never used as a postoperative analgesic; aminopyrine is used instead. A postoperative regimen free of acetylsalicylic acid in a series of 75 cases resulted in the conspicuous absence of hemorrhagic inflammation and of secondary hemorrhage in all

instances. The prothrombin lowering effect of salicylates described by a number of authors seems to be a plausible explanation for the occurrence of secondary post-tonsillectomy hemorrhage.

Arkansas Medical Society Journal, Fort Smith

42:1-50 (July) 1945

Few Things I Have Seen and Learned in Fifty Years of Medicine. J. H. McQuinn, p. 28.

Modern Concepts of Cardiovascular Disease. C. T. Chamberlain, p. 36.

42:51-68 (Aug.) 1945

Premature Birth and Neonatal Death in Arkansas. Frances C. Rothert, p. 51.

Senate Bill 1164. A Menace to Medical Welfare. M. Smith III, p. 53.

Modern Concepts of Cardiovascular Disease: Effect of Smoking Tobacco on Cardiovascular System. C. T. Chamberlain, p. 56.

Endocrinology, Springfield, Ill.

37:1-68 (July) 1945

Quantitative Relationship Between Adrenal Response and Dietary "Folic Acid" in Chick. R. Heitz, p. 1.

Further Study of Effect of Diet on Adrenal Weights in Rats. D. J. Ingber, p. 7.

Comparative Effects of Estradiol, Diethylstilbestrol and Its Monomethyl Ether on Response of Rabbit Uterine Endometrium to Progesterone. N. T. Wertheissen and S. L. Garrill, p. 15.

Action of Thyroxin on Estrogen Induced Changes in Blood Chemistry and Endosteal Bone. Margaret R. McDonald, O. Riddle and Catherine C. Smith, p. 23.

Antidiuretic Potency of Neurohypophysis of Cat Following Pituitary Stalk Section. D. M. Phillips and K. Hare, p. 29.

Effects of Several Varieties of Stress on Cholesterol Content of Adrenal Glands and of Serum of Rats. F. Levine, p. 31.

Epidemiological Information Bull., Washington, D. C.

1:465-550 (July 31) 1945

Communicable Diseases in China During Recent Years. J. H. Lau, p. 495.

Current Reports on Prevalence of Plague, Cholera, Yellow Fever, Smallpox and Typhus, p. 538.

Gastroenterology, Baltimore

4:375-457 (May) 1945

Effect of Oral Administration of "Amino Acids" on Hypoproteinemias Resulting from Bleeding Peptic Ulcers: Preliminary Report. J. S. Levy, p. 375.

Acute Pancreatitis: Statistical Review of Recorded Experience. H. C. Robinson and P. S. Albro, p. 388.

Pathogenesis of Intestinal Polyps. J. S. Atwater and J. A. Bergen, p. 395.

Bicarbonate and Chloride of Pancreatic Juice Secreted in Response to Various Stimuli. W. M. Hart and J. P. Thomas, p. 409.

Gastric Excretion of Sulfonamides in Man: II. Excretion of Sulfapyridine, 441. Calculation of Theoretical Concentration Ratios. H. S. Block, L. Schild, Dorothy L. Fleming, N. Shapiro and H. H. Steinberg, p. 421.

Gastrostomy for Trichobezoar: Case Report. J. Sarinoff and S. J. Sarinoff, p. 426.

Blood Substrate Poisoning with Methemoglobinemia: Report of Case by Whiteley, G. F. Miller, p. 430.

Oral Administration of Amino Acids in Bleeding Peptic Ulcers

Eleven patients with severe hemorrhage from peptic ulcer were treated with the usual Sippy diet, to which was added a daily oral intake of from 100 to 200 Gm. of a mixture of amino acids. The serum protein returned to normal, on the average, within 10.2 days. In a control group of 6 patients who were given the Sippy diet without the addition of the amino acids the serum protein returned to normal, on an average, after nineteen days. The treatment was well tolerated. Levy stresses that the oral use of a mixture of amino acids in the treatment of peptic ulcer, especially in the presence of massive hemorrhage, has advantages; it acts as a buffer combining with acid, thus acting as an antacid; it spares digestive activity on the part of the gastrointestinal tract, and it is effective in treating the hypoproteinemias following massive hemorrhage.

Pathogenesis of Intestinal Polyps. Atwater and Bergen studied material obtained at necropsy at the Mayo Clinic between October 1912 and February 1943. The mucosa of the entire colon was examined with a hand lens, tissues being taken from the several portions of the colon as well as from regions which aroused suspicion. Specimens and sections obtained from colons in which no abnormality could be found either grossly or microscopically were designated as "pure" controls. Some

sections were obtained from colons in which polyps existed; the sections in this part of the control group were taken both adjacent to and distant from such polyps. Sections obtained from these colons were called "impure" controls. The sections displaying polyps were divided into those showing benign polyps and those showing malignant polyps. Any structure protruding in abnormal fashion above the normal mucosa, sessile or pedunculated and having a plandular character, was considered a polyp. Fibromas, myxomas, hemangiomas, lymphangiomas, lipomas or other benign tumors were not included. It was possible to trace the pathogenesis of intestinal polyps from the earliest epithelial change to frank carcinoma. One way in which polyps are formed is through epithelial change. The incidence of colonic polyps including tiny sessile lesions was 69 per cent in the 241 cases studied. No difference was found in the occurrence of polyps in the two sexes. The mean average age of patients harboring polyps was 61 years. Lymphoid structures at most seem to play only a casual role in the pathogenesis of intestinal polyps. In view of the evidence and its abundant verification in clinical experience, it would seem that the term "benign polyp" should not give the idea of an innocent tumor but rather of one stage in the pathogenesis of a carcinoma.

Indiana State Medical Assn. Journal, Indianapolis

38:209-252 (July) 1945

Acute Pseudigo: Report of Case with Recovery. R. H. Gwintney, p. 209.

Gallbladder, Duct and Blood Vessel Anomalies. H. S. Leonard, p. 212.

First Nitrous Oxide Anesthesia Administered by Dr. Horace Wells. Dec. 11, 1844. A Memorial. C. N. Combs, p. 213.

Intrathecal Penicillin in Cervical Spinal Syphilis. J. R. Thresher, p. 216.

Relation of Whooping Cough to Tuberculosis. M. P. Danbury, p. 220.

38:253-288 (Aug.) 1945

Medical Education. W. D. Gatch, p. 281.

Method of Treatment of Fracture of Mandible Without Denture. A. V. Cole and E. A. Campagna, p. 257.

Reunion of 800 Cases of Early Syphilis Treated by Five Day, Slow Drip Method. G. W. Bowman and P. F. Humphrey, p. 259.

Prevention of First Step in Cancer Control. Augusta Webster, p. 269.

Journal of Immunology, Baltimore

50:317-396 (June) 1945

*New Method for Production of Potent Inactivated Vaccines with Ultraviolet Irradiation. H. Sterilization of Bacteria and Immunization with Rabbits and St. Louis Encephalitis Vaccines. S. O. Levinson, A. Miller, H. J. Shaugnessy, J. L. Neal and P. Oppenheimer, p. 317.

34:1-111. Completely Inactivated Poliovirus Vaccine with Landing Strain in Man. A. Miller, P. Oppenheimer and S. O. Levinson, p. 331.

Distribution and Heredity of Human Blood Properties. A. R. M. N. P. and R. H. A. S. Wiener, P. R. Sosa and Ruth B. Bellin, p. 345.

Negative Phase in Antigenotoxic and Precipitin Productive Activities in Rabbits. H. R. Wolfe, R. K. Meyer and W. H. McShaw, p. 349.

Quantitative Study of Neutralization of Western Equine Encephalomyelitis Virus by Its Antiserum and Effect of Complement. Isidore M. Morgan, p. 359.

Antibody and Chemical Studies of Shigella Paratyphosus Isolated in Puerto Rico. L. M. González and P. M. Otero, p. 373.

Production of Tetanal Toxin. J. H. Mueller and Pauline A. Miller, p. 377.

Production of Tetanal Toxin. Edith M. Taylor, p. 385.

New Method for Production of Potent Inactivated Vaccines. Levinson and his co-workers have developed a new method for completely killing turbid suspensions of bacteria and viruses in less than one second by exposing continuously flowing thin films to far and extreme ultraviolet irradiation. Intensity, film thickness, time of exposure and distance have been so standardized that experiments could be duplicated with consistent results. By means of this new technique, suspensions containing approximately one billion organisms per cubic centimeter of the following bacteria were completely killed in 0.17 to 0.33 second exposure to ultraviolet rays: *Escherichia coli*, *Cherthella typhi* (strain 58), *Salmonella enteritidis*, *Staphylococcus aureus*, *Streptococcus childers* and *Diphtheria pneumoniae* (type 1). Four per cent uncentrifuged brain tissue suspensions infected with fixed rabies or lymphocytic choriomeningitis virus were completely inactivated by irradiation for 0.17 to 0.33 second; an exposure twice this length was necessary to inactivate highly centrifuged 4 per cent suspensions of St. Louis encephalitis virus. Several lots of rabies vaccine

inactivated by this irradiation technic consistently induced a higher degree of immunity in mice than control phenolized vaccines. The irradiated rabies vaccines exhibited no significant loss of potency after six months' storage at 5 C. Two lots of St. Louis encephalitis vaccine inactivated by this irradiation technic conferred a high degree of immunity in mice. Irradiation of rabies or St. Louis encephalitis viruses beyond the optimal time necessary for complete inactivation causes progressive diminution of antigenicity.

Journal of Neurosurgery, Springfield, Ill.

22:257-364 (July) 1945

- Improved Clinical Dermohmmeter. H. Jasper.—p. 257.
Studies of Electrical Skin Resistance in Peripheral Nerve Lesions. H. Jasper and P. Robb.—p. 261.
Primary Chronic Coccidioid Meningitis Diagnostic Neurosurgical Problem. D. L. Reeves and C. F. Baisinger.—p. 269.
Use of Tantalum Foil in Subdural Space. R. C. L. Robertson and W. G. Peacher.—p. 281.
Automatic Self-Retaining Laminectomy Retractor. M. A. Glaser.—p. 285.
*Carotid Sinus Syncope Secondary to Ligation of Carotid Vessels for Intracranial Arteriovenous Aneurysm: Report of Case, with Surgical Cure: Electroencephalographic and Electrocardiographic Studies. E. Roseman, B. B. Whitcomb and F. G. Woodson.—p. 287.
Histologic Studies of Brain Following Head Trauma: I. Post-Traumatic Cerebral Swelling and Edema. J. P. Evans and I. M. Scheinker.—p. 306.
Homologous and Heterologous Transplantation of Brain and Brain Tumors. H. S. N. Greene and H. Arnold.—p. 315.
Forward Neurosurgery in Italy. H. V. Slemmon.—p. 332.
Subdural Hygroma: Report of 7 Cases.—p. 340.
Experiments on Head Wounding by High Velocity Missiles. E. G. Butler, W. O. Puckett, E. N. Harvey and J. H. McMillen.—p. 358.

Carotid Sinus Syncope.—Roseman and his associates present an unusual case of a sensitive carotid sinus syncope developing after ligation of the common carotid and internal carotid arteries. The patient originally had multiple severe injuries about the head with the resultant production of an arteriovenous aneurysm of the left internal carotid artery and cavernous sinus. An unusual opportunity for follow-up was afforded by the use of the electroencephalogram and the electrocardiogram. The control electroencephalogram was characterized by the presence of high voltage fast activity, which disappeared with the abeyance of the subjective noises in the head and reappeared with the intermittent presence of the swishing sounds heard by the patient. The sensitive carotid sinus appeared on the side of the ligated carotid vessels some two months after operation and is attributed to scar tissue formation, with resultant tension stimulation of the left carotid sinus each time the head was turned to the right. Electroencephalographic and electrocardiographic tracings of the syndrome are recorded. Cure of the sensitive left carotid sinus occurred following complete excision of the carotid bifurcation.

New England Journal of Medicine, Boston

233:143-172 (Aug. 2) 1945

- *Splenectomy for Acquired Hemolytic Jaundice in the Aged: Report of Case. D. F. James and L. R. Evans.—p. 143.
Development of State Child Guidance Clinics in Massachusetts. E. C. Yerbury and Nancy Newell.—p. 148.
Mycotic Infections. J. G. Downing and N. F. Conant.—p. 153.
Traumatic Esophageal Ulcer (Gavage Tube): Aspiration Pneumonia, with Multiple Pulmonary Abscesses. S. Farber.—p. 162.
Adenocarcinoma of Lung, with Metastases to Bronchial Lymph Nodes and Brain: Tentorial Pressure Cone, with Cerebral Infarction. J. Michelsen.—p. 165.

Splenectomy for Hemolytic Jaundice in the Aged.—James and Evans present the history of a woman aged 70 who developed severe hemolytic anemia. The case is of interest because it yields information on three phases of the diagnosis and treatment of hemolytic jaundice. First, the disparity among results obtained with various types of erythrocyte fragility tests deserves comment. Second, an attempt to classify the patient's anemia as either the congenital or the acquired form helps to evaluate recent studies of certain features of these syndromes. Third, the patient's advanced age at the time of onset and of splenectomy is of interest, since only 1 other case of splenectomy for hemolytic jaundice over the age of 70 has been reported in the literature. Study of the literature revealed 15 cases, including the 1 here reported, in which the onset of hemolytic jaundice occurred at or beyond the age of 50 and in

which not all the essential criteria for a diagnosis of congenital hemolytic jaundice were present. The family and past histories were noncontributory. Symptoms and physical signs included loss of energy, anorexia, weakness, palpitation, shortness of breath on exertion, pallor, jaundice and enlargement of the liver and, somewhat more regularly, of the spleen. Of the 15 cases, 5 showed definite improvement after splenectomy. In 10 of the cases splenectomy was ineffective or resulted in acceleration of the downhill course. The cases reviewed demonstrate that splenectomy may save the lives of elderly persons with acquired hemolytic jaundice and that it should not be regarded as a useless procedure. Although good results following splenectomy are more likely in a patient with increased erythrocyte fragility, spherocytosis and a spleen typical of congenital hemolytic jaundice than they are in others, it is sometimes of value in patients whose clinical picture lacks one or more of these characteristics.

New York State Journal of Medicine, New York

45:1605-1710 (Aug. 1) 1945. Partial Index

- Thiouracil: Review of Its Clinical Indications. G. W. Bissell.—p. 1643.
Cardiac Reflexes Originating in Respiratory Tract. D. Scherf.—p. 1647.
Psychiatry in Wartime—Some Recent Developments. J. Wortis.—p. 1651.
Cause of Uveitis. D. B. Kirby.—p. 1655.
Spontaneous Mediastinal Emphysema. M. H. Stein.—p. 1659.
Increased Incidence of Venereal Disease in Upstate New York. J. H. Lade.—p. 1663.
Present Status of Research in Chemotherapy of Sulfonamides, Sulfones and Related Compounds in Experimental Tuberculosis. M. I. Smith.—p. 1665.
*Dermatologic Aspects of Poliomyelitis. J. G. Reyes.—p. 1673.

Dermatologic Aspects of Poliomyelitis.—During the recent poliomyelitis epidemic in New York City, Reyes observed 84 children, their ages varying from infancy to 14 years, admitted to St. Francis Hospital with the diagnosis of poliomyelitis. The disease was more common in boys than in girls, the ratio being 5 to 1. In 98 per cent of the children lesions were located on both infrapatellar areas, on the anterior and lateral aspects of both ankle joints, on the dorsa of both feet, on both soles and on the malleoli. The lesions were symmetrical and were typically those of hyperkeratinization in the form of plaques, small papules or slightly verrucous elevations, with roughness and dryness of the skin of the legs. Lesions of these types and forms are encountered in cases of vitamin A deficiency. Their abundance seemed to be proportional to the severity of the poliomyelitic involvement, their prominence disappearing with the abatement of the disease. Among the children who were admitted for other lesions, only 1 in 8 had such skin manifestations. From the extremely high incidence of these skin lesions in poliomyelitis, Reyes deduces that vitamin A deficiency may be a predisposing factor of poliomyelitis. He advises that a diet rich in vitamin A should be given to all children, especially during the periods of epidemics, and this diet should be supplemented by cod liver oil or its concentrates. Since vitamin A deficiency will produce keratinization of the epithelium of the skin and the mucous membranes of the internal systems, it is possible that these structures which have been affected by the keratinizing metaplasia are open doors for the entrance of the poliomyelitis virus into the human body. It should be investigated whether the administration of vitamin A, either by mouth or parenterally, is of value in the treatment of poliomyelitis.

North Carolina Medical Journal, Winston-Salem

6:309-352 (July) 1945

- Roentgenologic Aids in Differential Diagnosis of Acute Abdominal Conditions. J. P. Rousseau and L. M. Morris.—p. 315.
Review of Recent Ideas Concerning Diarrhea in Infants. M. J. Carson.—p. 323.
Vagitus Uterinus During Continuous Caudal Analgesia. A. T. Thorp.—p. 327.

6:353-394 (Aug.) 1945

- Retraction and Constriction Rings. P. Rucker.—p. 353.
Pneumococcal Meningitis in Children, with Report of 4 Cases. D. P. Boyette and W. L. Venning.—p. 359.
Management of Prostatic Conditions in the Aging. L. H. Barett.—p. 364.
Maintenance of Employee Health at North Carolina Shipbuilding Company. C. B. Davis.—p. 366.
Whooping Cough Immunization in North Carolina. C. P. Stevick.—p. 369.

Oklahoma State Medical Assn. Jour., Oklahoma City**38:277-318 (July) 1945**

- Thymus Gland and Its Relationship to Myasthenia Gravis. C. H. Campbell and J. M. Campbell.—p. 277.
Some Gynecologic Conditions Arising in Cervix and Their Treatment. K. J. Wilson.—p. 280.

38:319-360 (Aug.) 1945

- Association of Latent Vertical Phloria with Endocrine Dyscrasia. E. H. Coachman.—p. 319.
Anal Fistula. P. M. Vickers.—p. 323.

Physiological Reviews, Baltimore**25:377-572 (July) 1945**

- Relation of Adrenalin to Acetylcholine in Nervous System. J. H. Burn.—p. 377.
Intermediary Metabolism of Fatty Acids. W. C. Stadie.—p. 395.
Effects of Dietary Deficiencies on Oral Structures. I. Schour and M. Massler.—p. 442.
Physiologic Effects of Sunlight on Man. H. F. Blum.—p. 483.
Present Status of Problem of Thermal Burns. H. N. Harkins.—p. 531.

United States Naval Med. Bulletin, Washington, D. C.**45:1-205 (July) 1945**

- Tape Method of Skin Grafting. S. G. Berkow.—p. 1.
Post-Traumatic Hemothorax Management. E. M. Kent and H. E. Tehrock.—p. 14.
Plastic Technic in Surgery of Peripheral Nerves. G. V. Webster, C. H. Shelden and R. H. Pudenz.—p. 22.
Use of Hanging Casts in Compound Fractures of Humerus. H. B. Macey and M. B. Coventry.—p. 33.
Arteriovenous Aneurysm of Brain. B. E. Konwaler.—p. 37.
Adult Circumcision: Report of 354 Operations on Naval Recruits. R. L. Fruin and C. W. McLaughlin Jr.—p. 42.
*Buffer Precipitation Test for Malaria. E. Bogen.—p. 47.
Malaria Epidemic Aboard LST. T. Cooper and A. L. Wessels.—p. 54.
Quinine and Atabrine: Development and Present Application. E. H. Hudson.—p. 57.
*Egg Allergy: Significance in Typhus and Yellow Fever Immunization. H. B. Sprague and J. H. Barnard.—p. 71.
Simple Local Treatment for Throat Infections. H. H. Rosenthal.—p. 75.
Warnings in Use of Penicillin. N. S. Scarcello.—p. 77.
Leukocyte Counts in White and Negro Recruits on Sulfadiazine Prophylaxis: Comparative Study. L. E. Eckles and A. M. Weckstein.—p. 80.
War Wound Infections: Battle Casualties from Saipan Campaign, with Special Reference to Infection Due to Clostridia. P. Michael.—p. 83.
Myocardial Infarction: Roentgen Diagnosis. L. H. Garland.—p. 89.
Mumps Orchitis, with Discussion of Plasma Prophylaxis. S. Candel, M. C. Wheelock and G. J. Grimaldi.—p. 97.
Pyelonephritis: Its Newer Concept and Clinical Significance, with a Review of Literature. P. J. Fitzgerald.—p. 108.
*Replantation of Teeth. R. H. Alexander.—p. 126.
Simple Technic for Simple Fractures of Mandible. A. J. Lilly.—p. 135.
Neuropsychiatric Experiences in Advance Base Unit. K. Kelley.—p. 140.

Buffer Precipitation Test for Malaria.—Bogen states that in troops returning from the South Pacific repeated smears taken over a long period of time may be negative, yet months later chills may recur or even appear for the first time. Microscopic studies usually fail to disclose such latent infections. A variety of immunologic technics have been proposed for the diagnosis of malaria, but the difficulty in obtaining specific antigens and the variability of the results obtained have precluded their general use. In 1939 Wolff of Colombo, Ceylon, reported that blood serum added to buffered distilled water became cloudy at a higher pH in malaria than in normal controls. The following year he described a simple buffer precipitation test, using only a few drops of serum and requiring little technical labor. The reaction is apparently due to a euglobulin which arises in the blood of malaria patients. Wolff found that normal human blood serum added to distilled water at pH 7.7 remains clear, but blood serum from malaria patients becomes cloudy. From this observation the buffer precipitation test has been developed. More than 3,000 such tests made at the author's hospital have confirmed the validity of this reaction. The reaction is strongest in active malaria between paroxysms and in recently recovered patients but remains positive for many months. The test offers valuable aid both in individual diagnosis and in the detection of malaria in large groups. It may have interesting possibilities in suggesting prognosis, in guiding suppressive and therapeutic measures and in evaluating cures.

Egg Allergy.—Sprague and Barnard point out that extremely sensitive allergic egg reactors may develop serious and possibly fatal allergic reactions if inoculated with the vaccines of yellow fever and typhus which are cultivated in chick embryo or yolk sac tissue. Each person should be asked if he is sensitive to egg before being given typhus or yellow fever vaccine. Persons with an egg sensitivity history should be skin tested with diluted egg white and egg yolk. If they show negative skin tests to 1:10 dilution, it is believed that the vaccine can be given safely. The knowledge of severe immediate reactions to ingested egg since childhood was a prominent feature in the histories of 2 cases reported by the author. This sensitivity is often only one manifestation of a generalized allergic state. If the sensitivity is discovered, it would appear wise not to submit them to inoculation of vaccines containing chick embryo products.

Replantation of Teeth.—Alexander defines replantation as the reinsertion of a tooth in its original socket from which it has been dislodged either by accident or by design. Replantation of dislodged anterior teeth can be done painlessly and quickly. Splinting or wiring of the tooth need be maintained for only three to five weeks. If the tooth is not devitalized before replantation, periodic check-ups by x-ray and vitality tests should be made. Should there be unfavorable developments, such as putrescence or pain, the tooth can be devitalized. The shorter the time between dislodgment and replantation, the better the chances for reattachment of the tooth.

Wisconsin Medical Journal, Madison**44:673-740 (July) 1945**

- Abdominal Fistula of Appendical Origin. E. W. Schacht.—p. 673.
Heart Disease in Children from Pediatric Viewpoint. S. F. Morgan.—p. 676.
Pyogenic and Tuberculous Empyema. R. M. Davison.—p. 679.
Differential Diagnosis of Rheumatoid Arthritis. M. C. Borman.—p. 684.
Value of Routine Tuberculin Tests in Children. F. E. MacInnis.—p. 688.

44:741-840 (Aug.) 1945

- *Vasodilation in Treatment of Rheumatoid Arthritis: Use of Nicotinic Acid for Such Therapy. C. M. Kurtz, O. S. Orth and G. Sepulveda.—p. 761.
Hospital Autopsy. L. J. Van Hecke.—p. 765.
Experiences with Penicillin Therapy at State of Wisconsin General Hospital. C. J. Thill and O. O. Meyer.—p. 771.
Present Status of Early Treatment of Poliomyelitis. J. A. Toomey.—p. 780.
Circulatory and Renal Lesions Following Sulfonamide Therapy: Clinical and Pathologic Considerations. M. L. Carns and G. Ritchie.—p. 785.
Tuberculosis Control in General Hospitals. M. Joannides.—p. 789.

Nicotinic Acid for Vasodilatation in Rheumatoid Arthritis.—Kurtz and his associates used nicotinic acid to produce vasodilatation in treating 36 patients with rheumatoid arthritis. In addition, 6 patients with osteoarthritis have been given at least one course. Among the 36 patients with rheumatoid arthritis there were only 7 in whom the disease had existed less than two years. In most of the patients the disease had steadily progressed despite varied types of therapy. Twenty-eight of the 36 patients were bedridden. The initial intravenous injection consisted of 200 cc. of a solution of 0.05 per cent nicotinic acid in isotonic solution of sodium chloride. If this was well tolerated, 400 cc. of a 0.05 per cent solution was given daily thereafter. In most instances this produced a feeling of warmth or prickling and a visible flushing of the skin lasting approximately an hour. If the flush was of shorter duration or the patient developed a tolerance to the drug, the strength of the solution was increased to 0.1 per cent. The solution was injected by slow drip requiring from one to three hours for completion. One patient was encountered who reacted with nausea, emesis and mild cyanosis, so that further treatment with nicotinic acid was not attempted. The most satisfactory method of oral administration was to give 50 mg. of nicotinic acid every fifteen minutes for three doses before breakfast and again later in the day, either before lunch or before supper, and before retiring. The drug was always administered when the stomach was empty. In some cases the oral dose had to be increased from 50 to 100 or 200 mg. In the group of 35 patients with rheumatoid arthritis significant improvement was determined subjectively and objectively in 25 and 26 patients respectively.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:831-864 (June 16) 1945

Diodoquin for Chronic Amebic Dysentery in Service Personnel Invalided from India C. Morton —p. 831.

*Restoration of Diphtheria Immunity Without Injections: Toxoid Pastilles by Mouth. G. Bousfield —p. 833

*Observations on So-Called Thyrotropic Exophthalmos H. Zondek and A. Ticho —p. 836.

Hepatic Enlargement with Ascites in Children. A. L. McFarlane and W. J. Brandav —p. 838

Dark Adaptation Studies in Patients with Diseases of Skin A. Porter and E. W. Godding —p. 840.

Toxoid Pastilles by Mouth for Restoration of Diphtheria Immunity.—Bousfield conceived the idea of a fairly firm gelatin sweet or pastille containing about 100 Lf units of formaldehyde toxoid, suitably flavored with some neutral agent such as peppermint. He tried the effect on himself, sucking four of the toxoid disks daily for seven days, without experiencing inconvenience. After additional observations on volunteers, he tried the effect on children. The method seems to be generally effective in subjects who have a demonstrable amount of antitoxin in the blood or who are definitely known to have reached the Schick negative level at some time in the past. Rises in serum antitoxin content are striking in some of the cases. While there is no evidence that the method will suffice to provide an adequate stimulus for primary immunization, it appears to be generally applicable to children and adults who have ever been immune in the past, provided the age and intelligence of the subject are sufficient to ensure that the disks are sucked slowly. Modification of the technic might still render primary immunization feasible. The treatment can be administered to immune and nonimmune subjects impartially without fear of producing local or general reactions, and thus, in cases which are known to have been immune in the past, a Schick test is not essential before using this method of reimmunization. While attractive to needle shy children, the greatest value of such a method might be in dealing with adults—e. g. nurses or men in the services—when it is so important that constitutional disturbance shall be avoided.

Thyrotropic Exophthalmos.—Zondek and Ticho describe 3 cases of exophthalmos which, according to the present classification, would have been designated as thyrotropic exophthalmos. The ophthalmic manifestations were of particularly severe degree. Two of them presented severe decalcification of the skull bones and enlargement of the sella turcica; this finding points to involvement of the pituitary-diencephalic region. In both cases there were diabetic dextrose tolerance curves. The abnormally high blood cholesterol level in 2 cases argued against hyperthyroidism. All 3 cases responded favorably to diiodotyrosine. In 1 case (postoperative exacerbation of the exophthalmos) diiodotyrosine, in combination with pituitary irradiation on two occasions, resulted in considerable improvement of the eyes (such as regression of proptosis and disappearance of chemosis and epiphora) and thus rendered surgical intervention unnecessary. In view of the fact that the part played by the thyrotropic hormone in the production of this type of exophthalmos is doubtful, while that of the pituitary-diencephalic system seems to be highly probable, the looser definition of "pituitary-diencephalic" exophthalmos is suggested.

1:865-896 (June 23) 1945

*Toxicity of 2,2,1,1 (p-Chlorophenyl) 1,1,1-Trichloroethane (DDT). G. R. Cameron and F. Burgess —p. 865.

Acute Poisoning Due to Petrol Vapor. J. S. Lawrence —p. 871

Monarticular Osteoarthritis of Hip Treatment by Acid Injection W. G. Waugh —p. 873.

Torsion of Pelunculated Gastric Cyst M. D. Sheppard and J. R. Gilmour —p. 874

Pathology of Ruptured Plantaris G. B. Jones —p. 876

Toxicity of DDT.—Cameron and Burgess state that American investigations and their own experiments with DDT suggest that there is a wide margin of safety in its use as an insecticide. There is no reason to anticipate danger to man

provided a maximum concentration of 0.5 per cent of DDT is insisted on for sprays. Only gross carelessness would be likely to lead to serious features. Even with long continued exposure to such sprays it is difficult to see how ill effects would be incurred. On the other hand, men handling higher concentrations should take precautions against skin contamination. Cleanliness is essential, the use of gloves and protective garments advisable. In spraying concentrates the use of respirators is advocated. Dry powders of DDT present no danger of absorption from the skin. It is only when oily solvents are employed that such risks are likely to arise, and here again there is much variation according to the type of solvent used. Ample warning of the approach to toxic levels is given in the form of anorexia, muscular weakness and fine tremors. If at this stage DDT is discontinued, complete recovery is the rule in animals. Even when liver damage has developed, a fatal issue is not necessarily inevitable if further DDT absorption is prevented. Difficulty arises when liver degeneration sets in without premonitory symptoms or associated nervous signs, and a fatal degree of hepatic insufficiency may be reached without warning. The authors have learned to attach importance to rapid decrease in body weight in such instances. Other features of value in assessing toxic absorption are the development of anemia and leukocytosis. A rise in blood calcium may also be suggestive. Prolonged contact with undergarments impregnated with DDT has not produced local or general disturbances in human subjects.

Lancet, London

1:775-806 (June 23) 1945

*Storage of Skin for Autogenous Grafts D. N. Matthews —p. 775

*Management of Traumatic Pyothorax. J. L. Collis, M. H. A. Davison and P. S. Smith —p. 778.

Treatment of Rickets with Single Massive Doses of Vitamin D D. Krestin —p. 781.

Blood Acid Phosphatase in Prostatic Cancer. S. Wray —p. 783

Penicillin Sensitivity of Hemophilus Influenzae: Two Sensitive Pathogenic Strains. P. Torgaer, R. I. Hutchinson and R. E. Rewell. —p. 785.

Storage of Skin for Autogenous Grafts.—Skin storage reduces the number of donor areas needed in multiple stage plastic repair. The patient is saved the pain of second or even third donor areas, which often cause more pain than the field of operation during the first forty-eight hours. The duration of each operation, after the first, is also lessened by the time it would have taken to cut a fresh graft. A spare piece of skin is available in case the graft partially fails. Stored skin can provide an experimental skin bank for investigating the problems of heterogenous grafting. A standard method has been developed for the storage of skin in a refrigerator which maintains a temperature of from 3 to 6 C. The graft is folded with its raw surfaces opposed as far as its shape allows. It is wrapped in a piece of tulle-gras and this in turn in a piece of gauze tightly wrung out of isotonic solution of sodium chloride. It is then placed in a sterile air tight screw topped glass bottle having a cubic capacity of 20 cc. It is held away from the small amount of fluid which collects in the bottle by insertion of a ring of rubber tubing or leadfoil for it to rest on. The power of growth of stored skin was proved by tissue culture of skin stored for eight days. Some of the refrigerated grafts were found to be sterile; others were infected with the normal contaminants of the skin, but despite the survival of these organisms on the grafts they had no harmful effects even after storage as long as seven months. The contact coagulum method of fixation has been employed to hold the stored grafts in position when their application at the bedside without an anesthetic has prohibited the insertion of stitches for pressure dressings. Matthews reviews the results of the first fifty grafts of stored skin. There is a possible relationship between refrigeration and increased resistance of the skin to infection.

Management of Traumatic Pyothorax.—The 44 cases on which Collis and his associates base their report are instances of total or almost total pyothorax and do not include cases of early infected hemothoraces in which the fluid present never became frank pus. The number is not large relative to the total of 710 admissions to the unit, but the high mortality of 27 per cent (12 cases) emphasizes its importance. Experience

has led the authors to believe that a localized empyema is sometimes unavoidable but that total pyothorax, with the possible exception of cases associated with esophageal injury or very virulent organisms such as hemolytic *Clostridium welchii*, is an avoidable condition. Provided pulmonary expansion is effected and is maintained from the onset of treatment, infection can produce only a localized empyema. The authors differentiate between cases of closed and of open pyothorax. In cases of closed pyothorax aspiration is carried out for the first few days, penicillin being introduced into the pleura after aspiration on alternate days. A portion of the ninth or tenth rib is then resected, all clot removed and drainage instituted just under the lateral edge of the erector spinae. Breathing exercises are started at once. A method of two tube drainage, with an additional apical tube, allows the cavity to be washed out and prevents the drain from becoming blocked.

Quarterly Journal of Medicine, Oxford

14:57-124 (April) 1945

Psychogenic Basis of Some So-Called Rheumatic Pains. J. Elliot and H. S. Butler. p. 57.

Anemia Associated with Unidentified Erythrocyte Inclusions After Splenectomy. A. M. Pappenheimer, W. P. Thompson, D. D. Parker and Katharine F. Smith. p. 75.

Congenital Afibrinogenemia: Report of Case with Review of Literature. J. L. Henderson, G. M. M. Donaldson and H. Scarborough. p. 101.

Nephrocalcinosis Associated with Hyperchloremia and Low Plasma Bicarbonate. G. H. Baines, J. A. Barclay and W. T. Cooke. p. 113.

Congenital Afibrinogenemia.—Henderson and his associates think that there is still too great a tendency to regard congenital "bleeders" of the male sex as hemophilic without adequate clinical and laboratory investigations having been made to eliminate other possible causes of the hemorrhagic diathesis. They report a case of congenital afibrinogenemia in an otherwise healthy boy of 11 years. Only 6 other cases of this disease have been recorded in the literature, but it seems probable that complete investigation of all congenital "bleeders" would reveal more cases. The principal clinical features of congenital afibrinogenemia are its hereditary character, a high incidence of consanguinity in the parents, the susceptibility of both sexes, a total absence of fibrinogen in the blood, complete incagulability of the blood, a bleeding time which is usually prolonged, a great reduction of capillary resistance, a low blood sedimentation rate and intermittent thrombocytopenia. Treatment of the severe hemorrhage is by intravenous transfusion with whole blood or nonprocessed plasma. Absence of fibrinogen is regarded as the principal cause of the hemorrhagic diathesis in congenital afibrinogenemia, but diminished capillary resistance may be a contributory factor. Four cases of congenital hypofibrinogenemia which have been recorded in the literature are reviewed. The principal distinction between congenital afibrinogenemia and congenital hypofibrinogenemia is that no clotting occurs in afibrinogenemia, whereas it is normal in hypofibrinogenemia.

Presse Médicale, Paris

7:81-92 (Feb. 17) 1945

*Marbled Blanching of Part of Extremities, Alarm Sign of Ischemia. R. Leriche. p. 81.

Hypophysis and Clinical Correlations in Toxic Diffuse Goiter. J. E. Martin and P. Gidycz. p. 83.

Anticoagulating Action of Derivative of Camphor: Application in Phlebitis. C. Ollier and M. Matel. p. 83.

Marbled Blanching as a Alarm Sign of Ischemia.—Leriche thinks that marbled blanching is not usually given the attention it deserves. It does not as a rule occur alone but with accompanying signs, which are likewise neglected. It indicates irreducible ischemia. Sympathetic anesthesia, intra-arterial injection of procaine and ganglionectomy do not have any effect on it, because sudden marbled blanching and coldness of the hand or foot is always caused by a material obstruction in the circulation. Direct intervention at the involved point of the artery is an absolute necessity. Generally, marbled blanching occurs suddenly and without pain. The peripheral part is white and cold up to a certain point, where without transition the skin is warmer than on the opposite side. At the same time the extremity is insensitive; analgesia is absolute until the

patient attempts to move it. The peripheral pulse cannot be felt if this triad of symptoms is present. The author has seen marbled blanching after simple fractures of the elbow and of the lower third of the leg. The contused artery or arteries are rapidly thrombosed. Operating on the second day, Leriche has found the posterior tibial artery thrombosed and the anterior tibial artery compressed by an extensive ecchymotic infiltration. Resection of the posterior tibial artery, freeing of the anterior tibial and reduction of the fracture saved the foot. Marbled blanching is observed also in embolism, but in this case it does not last long; violet spots soon appear. He has not observed marbled pallor in arteritis, but he has seen the aforementioned triad in massive thrombosis of aneurysm. He has collected 6 cases of this type, of which he describes 1, in which the popliteal aneurysm was first removed and later a low amputation was done. This was better than an immediate amputation above the aneurysm, that is, in the thigh. Leriche stresses that in the sudden massive ischemic states, such as in embolism, prompt removal of the obstacle will save the extremity from amputation.

Saug, Paris

16:77-140 (No. 2) 1944, Partial Index

*Study of Megakaryocyte Aleukemic Myelocytosis. R. Delcourt. p. 77.

Acute Benzene Anemia: Development During Typhoid. Rapid and Total Cure. C. Riche, Lecaet and Dubaut. p. 91.

Aerodystia and Polyadenopathy: Microscopic Study of Lymph Nodes. J. Marle, R. Ungerstock and H. Brichet. p. 91.

Evolution of Eosinophilia in Course of Angiostomatias. G. Lavyer and L. C. Brumpt. p. 97.

Diagnosis of Aplastic Anemia in Childhood: Subacute Medullary Lymphoblastic Cryptocystitis. J. Chapal and P. Carad. p. 102.

Bone Marrow in Cancer: Attempted Physiopathologic Interpretation. C. Albary. p. 110.

Response to the Communication of Albary on Second Pancreas in Course of Cancer. L. Mallet. p. 117.

Cancerous Erythroblastic Anemias. R. Golin. p. 118.

Megakaryocytic Aleukemic Myelocytosis.—According to Delcourt the term megakaryocytic aleukemic myelocytosis is applied to a syndrome which in its complete form presents hepatomegaly, splenomegaly, subicterus or mild icterus, anemia, myeloma and normoblastosis, and severe myeloid and megakaryocytic reactions in the spleen, the liver and often the lymph nodes. The formation of multinuclear cells in the hepatic sinusoids frequently and the continuation of these with Kupfer's cells occasionally can be demonstrated. The nosologic place of megakaryocytic aleukemic myelocytosis is difficult to establish. The characteristic microscopic lesions group the syndrome with the reticuloses. Like these, megakaryocytic aleukemic myelocytosis is a rare disorder and its clinical diagnosis is difficult. The hematologic signs which accompany it occur in other blood dyscrasias, particularly in the erythroblastic anemias or in anemias resulting from bony spread of a cancer. Features of hemopoietic centers do not always show the pathognomonic element, the megakaryocyte. In the majority of cases diagnosis is not definite until after death. Exceptionally it may be possible to make the diagnosis by means of biopsy of the liver and spleen. The author reports a case of megakaryocytic aleukemic myelocytosis, in which there was intense erythroblastic reaction in the peripheral blood and hemopoietic centers. The patient, a woman aged 68, died, the immediate cause of death being an acute cardiac insufficiency. Necropsy revealed a pronounced myeloid reaction of the spleen with the formation of numerous megakaryocytes. This reaction was less severe and less systematized in the liver. The pleokaryocytic cells which were found there seemed to have an autochthonous origin at the expense of Kupfer's cells. There exist a transport of myeloid cells and of typical megakaryocytes to distant organs such as the thyroid, the parathyroids and the hypophysis. This is responsible for the formation of an important myelomegakaryocytic focus in a hemorrhagic cyst of the thyroid. In the treatment of this disorder only general routes are possible, and their usefulness is relative. Splenectomy is contraindicated. Irradiation is ineffective. Although a constitutional factor cannot be excluded, megakaryocytic aleukemic myelocytosis seems to be a toxic infectious syndrome of multiple causes.

Book Notices

A Handbook of Psychiatry. By Louis J. Karnosh, B.S., Sc.D., M.D., Associate Clinical Professor of Nervous Diseases, School of Medicine, Western Reserve University, Cleveland, Ohio. With the collaboration of Edward M. Zucker, A.B., M.D., Clinical Instructor in Nervous Diseases, Western Reserve School of Medicine, Cleveland, Ohio. Cloth. Price, \$4.50. Pp. 302, with 40 illustrations. St. Louis: C. V. Mosby Company, 1945.

Dr. Karnosh is associate professor of nervous diseases at Western Reserve University and director of neuropsychiatry, Cleveland City Hospital. Dr. Zucker is clinical instructor in nervous diseases at Western Reserve University and associate in neuropsychiatry at Cleveland City Hospital. As such both men have had extensive experience in neuropsychiatry as clinicians and teachers. The purpose of this handbook, as stated in the preface, "is to function as a faithful delineator of fundamental information on its particular subject and as a stimulating guide to further and more detailed study and investigation." This handbook should succeed in meeting both requirements. The book is well written. The bibliography is good although not very extensive (many excellent papers and books by well regarded writers on dynamic psychiatry have been omitted). Although the book contains only 302 pages including the index, the purpose for which the book was written has been adequately fulfilled. Probably the weakest chapter in the book is the one on psychosomatic medicine, which is finding such a prominent place in medicine today. The authors have ignored much of the research work that has been done in this field during the last decade. The chapters which relate to examination of the mental patient, management and observation of the mental patient and the purely descriptive material of categorical classification are particularly good. The chapters devoted to traumatic psychoses and psychoses with pathologic changes in the brain are also clearly and interestingly written. There is nothing in this handbook that is overtly controversial. Any differences in theory or practice related to different schools of psychiatry are presented without argument. The reader is left to read and arrive at his own conclusions. The book is recommended to students and graduates of medicine for exactly the purpose quoted in the preface.

Deep Massage and Manipulation Illustrated. By James Cyriax, M.D., B.Ch., Assistant Medical Officer, Physiotherapeutic Department, St. Thomas's Hospital, London. Cloth. Price, \$4.50. Pp. 242, with 98 illustrations. New York & London: Paul B. Hoeber, Inc., 1945.

This book deals exclusively with the technic employed and the results obtained from the penetrating effect of friction massage on deep-seated tissues. The technic described is that of deep friction over the site of the lesion, "which may or may not be within the painful area outlined by the patient." Heat is not given preceding this procedure; in fact, the author definitely states that he does not use it. He emphasizes the importance of diagnosis and the utilization of this technic "when a deeply situated soft structure has to have its mobility restored. . . . Hence traumatic or rheumatic lesions—both acute and chronic—of muscle, fascia, tendon, ligament and, sometimes, joint-capsule provide almost the only indications for deep friction."

Dr. Cyriax's method differs from the one used in this country. In the United States circular technic is used with the thumb over the lesion, while his method uses a deep transverse friction by means of the middle and index fingers, largely the middle finger. The purpose of this method is to free adhesions by "the mobilization of tissues in a way that exercises do not achieve."

The book is in two parts. The first part (18 pages) deals with the principles and technic of deep massage and manipulation. There are short chapters on (1) the scope and purpose of deep massage, (2) the principles governing the use of deep massage, (3) position of the physical therapist and her hands, (4) the physical therapist's working day, and (5) the action of massage. Part two (221 pages) has 98 full page plates. Each illustration has a page which describes the nature of the lesion, frequency, indication, the patient's posture, technic, duration of treatment and results. The descriptions are in sum-

mary form, and the illustrations clearly describe the technic. Both are well done.

Undoubtedly there are conditions in which the use of this vigorous technic is indicated; but, as Dr. Cyriax himself warns, there are dangers. "The use of deep friction, since it cannot fail to be painful, is justified only by the fact that it possesses great curative powers when applied to the right spot in the right way. If, then, damage is to be avoided, no question of deep friction can arise until two conditions are fulfilled—the first that the physiotherapist knows how to give it, and the second that she knows exactly where. Thus, the technically competent physiotherapist must be given a diagnosis precise in detail."

Unless the prescribing physician gives a diagnosis that is precise in detail, and the physical therapist knows how to apply the technic to the right spot in the right way, extreme caution should be used in introducing this method because of the danger of aggravating the original condition.

Character-Analysis: Principles and Technique for Psychoanalysts in Practice and in Training. By Wilhelm Reich. Translated by Theodore P. Wolfe. Second edition. Cloth. Price, \$4.50. Pp. 328, with illustrations. New York: Orgone Institute Press, 1945.

This book is an English translation of Reich's book of the same title published in Germany in 1933. As the jacket states, the book is intended for "students and practitioners in psychoanalysis." The book is not recommended to physicians or laymen who are not extremely well oriented in this specialty. There is much in the content of a controversial nature. The author takes a superior, almost condescending attitude toward most psychoanalysts, including Freud, whom he appears to condemn with faint praise. While there may be and probably is valuable material of careful thought and investigation contained in the contents of this volume, the subjects discussed should be strictly confined to serious students of dynamic psychiatry. Other readers will only be confused and bewildered by Reich's scientific jargon.

The Sexual Revolution Toward a Self-Governing Character Structure. By Wilhelm Reich. Translated by Theodore P. Wolfe. Cloth. Price, \$3.25. Pp. 273. New York: Orgone Institute Press, 1945.

This volume, like *Character-Analysis*, represents an English translation of a German production published in 1930. Also, like *Character-Analysis*, this book will prove neither valuable nor even interesting to any one who is not well oriented in psychoanalytic theory and practice. Reich may or may not have some valuable, advanced and constructive ideas. Only time and careful investigation of clinical material will prove whether his deduction, conclusions and what sometimes appear to be fantastic correlations are sound. Like most of Reich's books and papers, this volume is overloaded with "terminology," and even experienced psychoanalysts are liable to get lost in the maze of reichian clichés and attempts at new and original phraseology. The book is extremely confusing, but it is possible that something of value may eventually materialize as a result of Reich's studies. His books, however, are strictly for advanced students.

Psychiatry in Modern Warfare. By Edward A. Strecker, A.M., M.D., Litt.D., Professor of Psychiatry and Chairman of the Department, School of Medicine, University of Pennsylvania, Philadelphia, and Kenneth E. Appel, Ph.D., M.D., Sc.D., Assistant Professor of Psychiatry and Chief of Clinic, School of Medicine, University of Pennsylvania, Philadelphia. Cloth. Price, \$1.50. Pp. 88. New York: Macmillan Company, 1945.

A short, factual and sound statement of the psychiatric problems in modern warfare. The main part of this little volume deals with a comparison of the methods and utilization of psychiatric practice in the two world wars. Etiology, symptomatology, frequency, treatment and prognosis of the main psychiatric conditions encountered in the armed forces are given in a concise and readable manner. It is surprising that full utilization of psychiatry was not made by the armed forces until late in the war. Demobilization with attendant problems are thoughtfully stated in the last third of the book. Many valuable suggestions for physicians, psychiatrists, social workers, employers and others concerned with helping the veteran return to civil life will be found. It is a well written book that gives an epitome of the authors' vast experience and knowledge in a special field of psychiatry.

The Psychology of Women: A Psychoanalytic Interpretation. Volume II: Motherhood. By Helene Deutsch, M.D., Associate Psychiatrist, Massachusetts General Hospital, Boston. Cloth. Price, \$5. Pp. 408. New York: Grune & Stratton, 1945.

This is the second volume of a comprehensive study of the psychology of women by a woman psychiatrist. The author is not only an excellent clinician but possesses great ability in writing of her extended clinical experience. The first volume contains a superior and exhaustive study of the psychological development of women from early childhood to adolescence. Volume II is an equally comprehensive scientific investigation of motherhood. Reproduction with all its psychological, social and biologic aspects is carefully and clearly discussed in simple, easily understandable language. Three chapters at the end of the book are devoted to discussion of psychological problems of unmarried mothers, stepmothers and women who have adopted children. Many well known together with new or rarely recognized dynamic psychological formulations are convincingly illustrated in this work by a wealth of clinical material. The clinical material is so well presented by Dr. Deutsch that the reader has little difficulty in following and agreeing with the correctness of her dynamic conclusions. There is an extensive bibliography and adequate index. Assembling, discussing and formulating this truly scientific treatise was unquestionably a major undertaking. The result is well worth the effort involved.

Cinchona In Java: The Story of Quinine. By Norman Taylor. With an Introduction by Peter Honig. Cloth. Price, \$2.50. Pp. 87, with illustrations. New York: Greenberg, Publisher, 1945.

This is the story of quinine, told in an interesting style by Norman Taylor, known to garden lovers as the editor of the Garden Dictionary and other popular works but equally familiar to those interested in drugs as the director of the Cinchona Products Institute, an organization devoted to the promotion of quinine.

The history of the discovery of the medicinal value of the bark of the various species of the cinchona tree, the attempts to transport cinchona seedlings from Peru into other tropical countries principally by the Dutch and English, the conquest by the Dutch of the extraordinary cultural and genetic problems involved in the propagation of the most productive species, Cinchona ledgeriana, the international trade rivalries for the quinine market and the effect of the introduction of cinchona cultivation on the economic life of Java is a fascinating tale. Unfortunately for romanticists, Mr. Taylor tells us that the familiar story about the Countess of Chinchon is another piece of historical fiction. The antimalarial value of cinchona bark appears to have been first discovered by the Jesuit priests at Lima about 1630. For more than two centuries thereafter the world obtained its cinchona bark from South America. But it soon became evident, particularly to the Dutch and English, that the South American bark production could not keep pace with world demand, particularly since the natural South American cinchona preserves were being ruthlessly stripped without replanting and cultivation. Almost simultaneously both British and Dutch interests initiated cinchona projects. It is a tribute to Dutch perseverance that its efforts were finally crowned with success. Ironically the seedlings that proved to be best were obtained by the Englishman Charles Ledger and bought by the Dutch after the English had refused to take them.

But science is a fickle mistress, and it appears highly probable that atabrine and other newly developed synthetic antimalarials will diminish the importance of Ledger's stock, which is rich in the quinine alkaloid, and enhance the value of the spurned varieties which are abundant in quinidine, cinchonine and cinchonidine. There is little prospect that synthetic quinine or quinidine will have an important commercial influence on the situation.

The author undertakes to discuss malaria and its treatment, but one would never guess from his account that there was anything else than quinine available. It is a question whether the work might not have been a more clever piece of propaganda if the writer had at least given in passing "honorable mention" to atabrine and the critically important role it played in World War II.

There is no question that the Dutch have been handsomely rewarded for their work in making an ample supply of quinine

available to the world. But some believe the reward has been too great and that they have created an essentially evil monopolistic control over an article essential to human welfare. Those who share this point of view, and particularly some of our zealous public prosecutors, owe it to themselves, if they are intellectually honest, to read this able presentation of the case for the Dutch.

Principles of Psychology for the Basic Course in Nursing. By Rev. J. Edward Rault, O.S.B., Ph.D., and Sister M. Maurier Sheehy, R.N.M., B.S., Ph.D., Assistant Professor of Nursing Education, Catholic University of America, Washington, D. C. Cloth. Price, \$2. Pp. 200, with 18 illustrations. Milwaukee: Bruce Publishing Company, 1945.

This small book, by faculty members of the Catholic University, undertakes to provide material to be used as points of departure for discussions in the teaching of nurses. In highly condensed form the authors have endeavored to give a little of the essential material about the nervous system and much more about mental functioning. The result is a brief outline that should meet the purpose the authors intended, that is, as an aid to teachers of psychology. Taken by itself, however, the work has the basic weakness inescapable when those genetic considerations that offer the basis for the understanding of personality structure and human relationships are ignored, as they are by the authors. A nurse really cannot be helped to understand very much about her patient as a human being through a psychology that fails to give a consistent account of the growth and development of the emotional and social life through childhood and of the real life relationships people meet. She may learn quite a few psychological concepts and get some awareness of how people adjust and fail to adjust, but she does not get what the foreword of the book correctly asks for: a psychology with a "soul." This refusal of many psychologists to deal with the simple facts of human existence, of family and social relationships, is understandable in view of traditional taboos and prejudice. The following misstatement (page 124) perhaps makes the point most simply: "Freud and his followers base the development of various personality traits on accidental experiences of a sexual nature in early childhood." No one familiar with the development of dynamic psychology would quote this archaic concept in this form. If the teachers of psychology really wish to teach a psychology invested with "soul," a positive approach to the real life experience of human beings is necessary. This is not offered in the work by Rault and Sheehy.

Illustrations of Bandaging and First-Aid. Compiled by Lola Oakes, S.R.N., D.N. Third edition. Fabrikoid. Price, \$2. Pp. 272, with 300 photographs and coloured supplement. Baltimore: William Wood & Company, 1944.

A valuable textbook for teaching the art of bandaging. Numerous good photographs show clearly each step in the application of bandages to the injured parts of the body. Triangular and roller bandages are thoroughly described. It is regretted that so little mention is made of the use of adhesive bandages, since they enjoy wide use in this country. The sections on shock and first aid in hemorrhage are given in the briefest outline. Mention of the elementary physiology involved would have been both more instructive and more interesting reading. The section on first aid to fractures contains no information on the use of splints, particularly on the improvisation of splints from materials at hand. Photographs showing how to lift patients to a stretcher and the moving of patients are welcomed additions to the new edition.

Clinical Atlas of Blood Diseases. By A. Pinney, M.D., M.R.C.P., and Stanley Wyard, M.D., F.R.C.P. Sixth edition. Fabrikoid. Price, \$5. Pp. 198, with 48 illustrations. Philadelphia: Blakiston Company, 1945.

This edition of the pocket size atlas of blood diseases is a valuable and practical guide for the physician, technician or medical student. There are 48 excellent color plates of the different blood diseases. Opposite each plate there is a concise summary of the known facts on etiology, symptoms, blood findings, diagnosis and therapy. There are four pages on hematologic technique. There is an eight page glossary and index. This book is unexcelled as a small atlas of hematology.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

VITAL CAPACITY

To the Editor:—I am interested in the question of vital capacity, its estimation and its significance. None of the books in my small library seem to contain the necessary information for estimating it. I would appreciate references.

Ray S. Wycoff, M.D., Lexington, Neb.

ANSWER.—The maximum volume of air that can be exhaled after a maximal inspiration is called the vital capacity and represents an estimate of the total air content of the lung. An approximate relationship exists between vital capacity and total height: The vital capacity expressed in cubic centimeters is approximately twenty-five times the height in centimeters for man, twenty times for women, twenty-nine times for athletes and fifteen times for children. The measurement is easily accomplished with an ordinary spirometer. The standing patient is instructed to exhale as much air as he can after he has made a maximal inspiration. The rate of expiration should not be too slow or too rapid. Care should be taken that all the air exhaled goes into the recorder. The nose should be closed and the exhalation should be by mouth. It is important that the test be correctly made, and it must be performed two or three times after the patient is clearly instructed. Accuracy depends on the subject's cooperation and so is in part subjective.

Variations in the same person at different times are more significant than deviations from the standard. Vital capacity can be increased within limits with proper exercises. It is reduced in many diseases, especially those involving the cardiovascular and respiratory systems. It measures the elasticity of the lungs in heart failure and so gives an idea of the pulmonary vein engorgement.

The test is generally used to study the status and the evolution of a case of pulmonary tuberculosis or heart disease but adds little to the record of the symptoms and physical signs. Breath holding time is a simple bedside method of obtaining similar information.

References:

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Fishberg, A. M.: *Heart Failure*, Philadelphia, Lea & Febiger, 1937.
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CONGENITAL EXOPHTHALMOS

To the Editor:—A patient has congenital exophthalmos of an extreme degree. His brother, one sister and his mother have the same condition. Is there any one who does corrective surgery for such a defect?

M. A. Shillington, M.D., Montana.

ANSWER.—Any surgery performed for congenital exophthalmos must depend, of course, on the basic condition that is causing the protrusion of the eyeballs. Before a decision is reached as to the advisability of surgery, careful roentgenologic studies of the anterior skull are essential as well as an exhaustive examination of the possible degree of flaccidity of the extraocular muscles. If the correction is to come through surgery on the orbit, such work can be done by any capable neurosurgeon.

OLIVOPONTOCEREBELLAR ATROPHY

To the Editor:—A patient shows strong evidence of the neurologic syndrome designated under the term olivopontocerebellar degeneration. This man of 41 has for the past year been troubled by ataxia of the hands, a cerebellar type of speech defect and a cerebellar type of ataxia. There is no nystagmus and this, I believe, is in keeping with the diagnosis mentioned. The abdominal and cremasteric reflexes are absent, and the patient occasionally has diplopia. These last findings made me consider multiple sclerosis as a possibility, but in addition to the rather late onset the patient's real anxiety about himself in contrast to the typical mild euphoria so common in multiple sclerosis points strongly to a degenerative disorder of the olivopontocerebellar type. His negative spinal fluid findings are also consistent with the latter. I consulted a number of reports on olivopontocerebellar disease; in fact, every available reference in the medical school library. Some of these reports give much detail concerning morbid anatomy, but I can find little about prognosis. Some of the patients lived and apparently avoided serious disability for as long as fifteen or even twenty years, while in other cases the progress of disability was rapid and death occurred in a year or two. Is there any information not available to me on the prog-

nosis in this condition? From the nature of the underlying pathologic condition I do not feel optimistic as far as therapy is concerned and I am merely wondering if any one has any ideas that might be tried more or less experimentally.

Hervey M. Cleckley, M.D., Augusta, Ga.

ANSWER.—This case, no doubt, belongs in the group designated as olivopontocerebellar atrophy. Recently this term has been used to include Marie's ataxia, Sanger-Brown's ataxia and Gordon Holmes ataxia, because each are incomplete forms of one and the same process. This condition is thought to be a hereditodegenerative disease, although sporadic cases are occasionally seen. Pathologically there is atrophy of the inferior olives, the nuclei pontis and their fiber pathways leading through the middle and inferior peduncles into the cerebellum. The symptoms described fit in well with the cases of olivopontocerebellar atrophy or degeneration. The prognosis is poor for cure but not for life. There is no known treatment for this condition.

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CONTACT LENSES FOLLOWING CATARACT OPERATION

To the Editor:—Can a young woman who has been operated on for congenital cataracts wear contact lenses without causing harm or injury to her eyes? She wears bifocal lenses at the present time.

Martin F. Crotty, M.D., Cambridge, Mass.

ANSWER.—Ophthalmologists are fairly unanimous in the opinion that contact glasses cannot produce harmful results, with the possible exception of their use by patients with high myopia, in whom the trauma of introducing and removing contact glasses might possibly lead to detachment of the retina. Contact glasses are worn by many younger persons who have been operated on for cataract and are successful in such cases. The unfortunate feature is that seldom can they be worn for longer than four to six hours at a time.

PREMENSTRUAL SKIN IRRITATION

To the Editor:—A woman aged 30 complains of itching over the entire body two weeks prior to and until menstruation is established. There is a slight breaking out between the breasts and on the vulva, also a full feeling and tenderness of the breasts. The patient is well and apparently normal except for slight attacks of asthma due mostly to bleaching substance in washing clothes and occasionally to a few other irritants. Would estrogenic substance be indicated or what treatment is advised?

M.D., Iowa.

ANSWER.—It is probable that the symptoms described are based on an excessive amount of estrogenic substance. Therefore the administration of this material is contraindicated and would probably aggravate the situation. For the same reason androgen may do some good by neutralizing some of the excess estrogenic substance. It would be well to give not more than 200 mg. a month in order to avoid unpleasant side effects.

RADIUM TREATMENT OF CANCER OF THE TONGUE

To the Editor:—Could you give me an idea about the use of radium seeds in a malignant growth on the tongue? What are the statistics, if any?

Paul R. Howard, M.D., Oak Park, Ill.

ANSWER.—Cancer of the tongue can be successfully treated with both radon seeds and radium needles. The scarring produced is minimal, and the function after the treatment is usually much better than that obtained with the more radical surgical procedures. The estimation of dosage and the determination of implantation patterns require some skill, and the best results are obtained by experienced radiologists. Improper techniques may produce bone damage and painful sloughs. Cancer of the tongue frequently metastasizes to the cervical lymph nodes early, and this complication must be watched for and adequately treated at an early stage in each case. The five year salvage for all stages of the disease varies from 26 to 33 per cent in various clinics, and 60 per cent of five year cures has been reported for early lesions measuring less than 2 cm. in diameter. Good results with implanted sources of radiation have been reported by Regaud, Cade, Berven, Hayes Martin, Kaplan, C. L. Martin and others.

INJECTIONS OF DISTILLED WATER

To the Editor:—1. Is the therapeutic use of sterile distilled water approved for intravenous use to replace fluid loss in patients, and if so, what is the maximum safe amount that can be given? 2. If not, what harmful effects might result?

M.D., Pennsylvania.

ANSWER.—1. Therapeutic use of distilled water for intravenous use has never been approved by any agency.

2. The harmful results are more theoretical than real, but there appears to be no basis for preference for water over isotonic solution of sodium chloride. Any condition demanding water probably would demand salt also. One physiologist has taken, by continuous intravenous injection, 500 cc. of distilled water without lowering the blood count below his own experimental error. No subjective effects were noted; there was mild hemoglobinuria. Theoretically there could be hemolysis of injurious degree. The reason this is not more serious is that injected water is promptly mixed with blood, so that the degree of hypotonicity is reduced and hemolysis occurs only at the point of injection. Yet there is still no reason for preferring distilled water unless it might be that emergencies may arise when salt solution is not available. In that case, slow injection of water over a period of time might be done. In general, there is no sense in the suggestion. It is never desirable to reduce a physiologic safety factor if it can be avoided.

COUGH DUE TO ALLERGY

To the Editor:—I have a cottage at a summer resort where the nights are pleasantly cool but where the atmosphere is exceptionally damp; the humidity is often 80 to 90 per cent. Last summer my daughter, now 18 months old, developed a dry irritating cough which lasted until a month, or so after we returned to our regular home. This summer, within a week after moving to the summer cottage, she is again coughing. I am extremely allergic, but the baby has shown no other definite indications of allergy. Can the cough be due to the high humidity? If so, is it probable that this may be an etiologic factor in any serious respiratory trouble, such as bronchiectasis? Is the sensitivity likely to decline in the future? Most of the residents at the resort have no complaint, but now and then some one will come for a short time and leave because of the humidity.

M.D., Illinois.

ANSWER.—A dry irritating cough, present under the conditions described during two successive summers and continuing for a month after returning to the all year round home, is not likely to be due only to high humidity. An allergic basis is more likely. Mild asthma or bronchial irritation may be considered preasthmatic. The following possibilities should be considered: (1) pollen sensitivity (grass pollens and ragweeds); (2) mold sensitivity, either in conjunction with pollen sensitivity or as a primary cause of the allergy; (3) environmental factors present in overwhelming amounts in the summer cottage not in such abundance in the regular home (various house dusts or animal emanations). This last is the least likely of the three possibilities but should be looked for as a possible explanation of symptoms.

CANCER, ARTIFICIAL MENOPAUSE AND LIBIDO

To the Editor:—A married woman aged 35, without children, has been separated from her husband for about three years. Her height is 5 feet 4½ inches (163 cm.) and weight 110 pounds (50 Kg.). Her parents are living and well, as are also 8 brothers and sisters. The patient is the eldest in the family. Her past history is normal: the appendix was removed at 4 years; there was drainage, but a good recovery was made; there was no severe peritonitis. The tonsils have been removed. There have been no pregnancies. The patient's habits are good; neither liquor nor tobacco is used. In December 1944 she had some irregular bleeding; in March 1945 a diagnosis by biopsy was made of carcinoma of the cervix. Radium was used in the standard amount by a doctor in Salt Lake City, who explained to the patient that she would have an artificial menopause and that no children could be had by any subsequent marriage. The patient now complains that she lacks sexual desire, response to her fiancé and so forth and asks whether anything can be done to restore the former normal libido. Is it safe to administer estrogenic substance by needle or by mouth, as ethinyl estradiol or diethylstilbestrol? Would such hormones be likely to restore the feeling of well being and sexual desire formerly experienced?

M.D., California.

ANSWER.—In the normally menstruating woman frigidity and lack of libido constitute a psychologic problem and not an endocrine one. In women from whom the ovaries have been removed, however, the decline in sexual desire may be reestablished through the administration of estrogens. Nevertheless, for this patient estrogens are contraindicated since, as the Council on Pharmacy and Chemistry of the American Medical Association has declared, a familial or personal history of a cancer in the generative organs is a contraindication to the use of estrogens. Estrogens are not directly carcinogenic, as is

the case with certain coal tar derivatives and other compounds, but by stimulating the growth of the sexual tissue they may influence these tissues to develop a malignant condition where there is a genetic tendency toward such changes. The androgens testosterone propionate or methyl testosterone may be administered to such a patient, since these compounds will relieve to some extent the menopausal symptoms and at the same time cause an increase in libido. As a matter of fact, it has been demonstrated that testosterone compounds may increase the sexual desire of many women even with normal menstrual cycles, probably through the enlargement of the clitoris, since this organ responds to androgens. The dosages recommended are 25 mg. of testosterone propionate twice weekly until a response is obtained, and then the dose may be diminished to a maintenance level. Methyl testosterone may then be used to maintain the therapeutic response conveniently; since this material is administered by mouth.

CONGENITAL ANOMALY OF UMBILICAL VEIN

To the Editor:—I operated on a patient recently who had a split in the falciform ligament of the liver; i. e., the round ligament (containing the obliterated umbilical vein), instead of forming the lower free edge of the falciform ligament as it normally does, ran alone from the under surface of the liver to the umbilicus. Above this was an empty gap, and above this was the falciform ligament of the liver. I have been unable to find any references to this rare embryologic defect. Would you be kind enough to help me?

M.D., California.

ANSWER.—In an article by H. L. Trimmingham and John R. McDonald entitled "Congenital Anomalies in the Region of the Umbilicus" (*Surg., Gynec. & Obst.* 80:152 [Feb.] 1945) it is stated that "the umbilical vessels converging at the umbilicus persist, normally, as the two obliterated hypogastric arteries, and the ligamentum teres of the liver's falciform ligament. It is doubtful whether this process is ever subject to pathologic aberration." Other references have not been found which in any way relate to the condition described in the inquiry.

SULFONAMIDES AND TRANSFUSIONS OR INFUSIONS

To the Editor:—Spink's book on the sulfonamides advises against the simultaneous use of the intravenous preparations of the sulfonamides with blood transfusion and parenteral glucose. For how long a period is either of these procedures interrupted if sulfonamide compounds are given intravenously? One hour? Two hours? Also can two different sulfonamides be given to the same patient? Are there any contraindications? For instance, a patient receives sulfamerazine (one or two doses) and then, being unable to get the sodium salt of sulfamerazine, one is forced to use sodium sulfadiazine intravenously on account of the serious condition of the patient.

M.D., Ohio.

ANSWER.—Further experience with the sulfonamides indicates that there is no contraindication to the simultaneous parenteral administration of the sulfonamides with transfusions of blood, plasma and infusions of solutions of glucose and sodium chloride. The original recommendation of not giving the sulfonamide simultaneously with other preparations was a precautionary measure. If patients should experience a systemic reaction there would be some difficulty in ascertaining whether or not it was due to the sulfonamide or to a transfusion or infusion. The possibility still exists that confusion might arise under these circumstances, particularly in patients who may have become sensitized to the sulfonamides.

There is no contraindication to the administration of two sulfonamides as illustrated. Sodium sulfadiazine may be given in place of sodium sulfamerazine. Subsequent doses of any sulfonamide following initial treatment with another sulfonamide should be regulated according to the sulfonamide blood levels.

SULFONAMIDES AND PROPHYLAXIS OF SCARLET FEVER

To the Editor:—Is it advisable to use the sulfonamides as a prophylaxis for contacts of scarlet fever patients?

M.D., California.

ANSWER.—Favorable reports have come from military sources with regard to the use of the sulfonamides for controlling streptococcal infections. Many physicians in private practice use the sulfonamides with prophylactic intent for scarlet fever contacts. Nevertheless patients while on sulfonamide therapy have been known to develop scarlet fever, and there are some resistant types of hemolytic streptococci against which the sulfonamides are ineffective. The question of sensitivity to the sulfonamides may also deserve consideration. For scarlet fever prophylaxis convalescent scarlet fever serum is preferable to the use of the sulfonamides.

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TRANSIENT TACHYCARDIA

PROGNOSTIC SIGNIFICANCE ALONE AND IN ASSOCIATION WITH TRANSIENT HYPERTENSION

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The rate of the heart varies widely in normal persons and may be increased temporarily by many different causes. Among them are excitement, exertion, pain, the ingestion of food, the drinking of coffee or tea and the smoking of tobacco. Acceleration is observed also in numerous states of disease, such as thyrotoxicosis, infection, shock and hemorrhage.

Transient tachycardia due to emotional disturbance, when the only sign of a disordered cardiovascular system, has not been considered clinically important. No careful analysis of this condition has been found in a survey of the literature. In monographs on diseases of the heart only casual mention is made of it. In the booklet on "Standards of Physical Examination During Mobilization" (MR 1-9), issued by the War Department on Oct. 15, 1942, it is specified that a heart will be considered normal when there is "a pulse rate of 100 or over which is not persistent and not due to paroxysmal tachycardia." However, a registrant is not acceptable who shows "a persistent heart rate of 100 or over when this is proved to be persistent in the recumbent posture and on observation and reexamination over a sufficient period of time." The same criteria are applied to candidates for admission to the United States Military Academy (Army Regulations 40-100, Nov. 16, 1942) and to those seeking a commission in the Regular Army, National Guard, Army of the United States and in the Organized Reserves (Army Regulations 40-105, Oct. 14, 1942).

Quite recently some 5,000 men disqualified for general military service for cardiovascular reasons were reexamined by groups of cardiologists in five large

cities.¹ These examiners, using the Army standards, likewise were not impressed by the importance of a temporary increase in heart rate. In fact, in the report of this study the question was raised as to the advisability of extending the upper limit of the normal range, at rest, from 100 to 120 beats per minute. Because of the lack of specific information concerning the significance of transient tachycardia in terms of the subsequent history, the present analysis was undertaken.

MATERIAL, DEFINITIONS AND METHODS OF ANALYSIS

The same medical records of 22,741 Army officers, which served as the source of material for earlier papers in the series, were used in this investigation. The manner of collecting and preparing the data for statistical analysis has been described in previous publications.²

In this study, transient tachycardia has been the topic of central interest. In particular, its prognostic significance has been appraised, using as criteria the later development of sustained hypertension and of retirement and death with cardiovascular-renal diseases. The experience with transient tachycardia alone has been compared with the corresponding experience with transient hypertension alone, with the two conditions combined and with neither present. A brief note on sustained tachycardia has been included.

By transient tachycardia was meant a heart rate of 100 or over, of sinus origin, which was followed after rest, on any particular examination or at a later examination, by a rate under 100. The highest rate obtained during an examination was recorded. Tachycardia was considered to be sustained when a rate of 100 or over persisted, in the recumbent posture, throughout one examination or in a series of reexaminations made in the course of several days.

By transient hypertension was meant a reading over 150 mm. of mercury systolic or 90 diastolic which was followed, on any particular examination or at a later examination, by a reading below these levels. The highest systolic and diastolic readings obtained in any one of a series, taken at a given examination, were recorded. Sustained hypertension was taken to mean a reading of over 150 systolic or 90 diastolic, persisting throughout one examination, and not followed in subsequent examinations by lower levels.

1. Levy, R. L.; Stroud, W. D., and White, P. D.: Report of Reexamination of 4,994 Men Disqualified for General Military Service Because of the Diagnosis of Cardiovascular Defects: A Combined Study Made by Special Medical Advisory Boards in Boston, Chicago, New York, Philadelphia and San Francisco, J. A. M. A. 123:937 (Dec. 11), 1929 (Dec. 18) 1943.

2. Hillman, C. C.; Levy, R. L.; Stroud, W. D., and White, P. D.: Studies of Blood Pressure in Army Officers: Observations Based on an Analysis of the Medical Records of 22,741 Officers of the United States Army, J. A. M. A. 125:699 (July 8) 1944. Levy, R. L.; White, P. D.; Stroud, W. D., and Hillman, C. C.: Transient Hypertension: The Relative Prognostic Importance of Various Systolic and Diastolic Levels, and 128:1059 (Aug. 11) 1945. Levy, Hillman, Stroud and White.³

This is the fourth in a series of papers dealing with "Studies of Blood Pressure in Army Officers."

Dr. John W. Fertig, professor of biostatistics, Columbia University College of Physicians and Surgeons, aided in the analysis and preparation of the material for final presentation.

The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Columbia University.

Cardiovascular-renal conditions, if present, were always included in the tabulation as causes of retirement or death, even though not directly responsible for either. Thus, an officer may have retired or died with such a disorder but not necessarily because of it.

As in the papers to which reference already has been made, the method of person-years was employed in the

TABLE 1.—Experience, in Person-Years, Until the Occurrence of Sustained Hypertension, by Age, According to the Presence or Absence of Transient Tachycardia and Transient Hypertension

Age	Person-Years			
	Without Transient Tachycardia, Without Hypertension	Without Transient Tachycardia, With Hypertension	With Transient Tachycardia, Without Hypertension	With Transient Tachycardia, With Hypertension
25-29	20,007	1,711	1,189	110
30-34	31,101	3,587	1,000	998
35-39	31,125	5,992	2,210	1,578
40-44	29,101	7,702	2,180	1,003
45-49	21,019	8,097	2,171	2,205
50-54	12,325	0,309	1,132	1,778
55-59	5,703	1,073	746	1,108

analysis of the data in order to obtain the proper base from which to calculate the various rates on the usual annual basis. Because the subjects remained in the study for varying periods of time, it was essential that their experience be properly evaluated from entrance into the study until retirement or death, or until the period covered by the study was terminated. Further, the experience of each individual was allocated to the proper age group, since the risks discussed vary with age.

It should be stressed that it is not the number of individuals in any group which forms the base for the calculation of the rates, but rather the units of exposure accumulated by them. In fact, the same person might, at different times, belong to different classification groups with respect to the presence or absence of transient hypertension or of transient tachycardia. Thus, there were some who had neither condition throughout their stay in the study and so contributed

TABLE 2.—Rate of Developing Sustained Hypertension, Disability Retirement Rate and Death Rate with Cardiovascular-Renal Diseases, by Age, for Those Without Either Transient Tachycardia or Transient Hypertension (per Thousand Person-Years)

Age	Rate of Developing Sustained Hypertension	Rate of Retirement with Cardiovascular-Renal Diseases	Death Rate with Cardiovascular-Renal Diseases
25-29	0.1	0.2	0.2
30-34	0.7	0.2	0.1
35-39	1.3	0.4	0.1
40-44	1.7	1.2	0.4
45-49	5.1	3.0	1.3
50-54	7.7	8.7	2.0
55-59	13.4	10.3	1.0

all of their experience to the control group. Others began as controls and later developed transient tachycardia or transient hypertension. Their experience was appropriately allocated to the two corresponding groups. Still others began as controls, later developed one condition and still later developed the other. Their experience evidently was divided among three different categories. Thus, if a man aged 27, who began his experience as a control, developed transient hyperten-

sion at age 38 and transient tachycardia at age 46 and was retired for disability at age 56, he received eleven years' control experience in the proper age group, eight years' experience in the transient hypertension group and ten years' experience in the group with both conditions.

The base for calculating the rates of later development of sustained hypertension is somewhat smaller than that for retirements or for deaths, since the persons who developed sustained hypertension might remain in the study for some time before they retired or died, or before the study was terminated. Obviously, during this time they were not exposed again to the same risk. Although the difference in the number of person-years, because of this circumstance, was only about 5 per cent, it was considered worth while to take it into account in the analysis. The age distributions of person-years, shown in table 1, are appropriate only to calculating the rates of developing sustained hypertension. The appropriate distributions for rates of retirement and of death were, of course, also calculated but the figures are not reproduced here.

CONTROL GROUP

The Rates of Developing Sustained Hypertension, of Disability Retirement and of Death with Cardiovascular-Renal Diseases, by Age, for Those Without Either Transient Tachycardia or Transient Hypertension

TABLE 3.—First Occurrence of Transient Tachycardia, by Age

Age Periods	Number Under Observation Throughout Each Age Period	First Transient Tachycardia	Frequency, per Cent
25-29	3,009	115	3.7
30-34	4,526	201	4.4
35-39	5,000	300	5.1
40-44	5,081	310	5.6
45-49	4,010	210	6.0
50-54	2,675	109	6.6
55-59	1,002	70	6.6

(table 2).—It is apparent that in all three categories the rate increases with age. It is by using these rates as a base that the ratios given in tables 4, 5 and 6 are obtained.

TRANSIENT TACHYCARDIA

First Occurrence, by Age (table 3).—The frequency increases somewhat with age, up to 45; at this point a plateau apparently is reached. The first occurrence of transient hypertension, by age, shows a considerably higher frequency.³ However, the curve of increase is similar, beginning with a frequency of 5.9 per cent in the age group 25-29 and reaching a plateau, with 18.6 per cent, at age 50.

Development of Sustained Hypertension, by Age, According to the Presence or Absence of Transient Tachycardia and Transient Hypertension (chart 1 and table 4).—The relative prognostic importance of transient tachycardia and transient hypertension, with respect to the later development of sustained hypertension, is clearly shown in the curves in chart 1. The lowest curve, representing the control group in which neither condition is present, shows a gradual increase in the rate with age. Both the group with transient tachycardia alone and the group with transient hyper-

3. Levy, R. L.; Hillman, C. C.; Stroud, W. D., and White, P. D.: Transient Hypertension: Its Significance in Terms of Later Development of Sustained Hypertension and Cardiovascular-Renal Diseases, J. A. M. A. 124:1829 (Nov. 25) 1943.

tension alone show much higher rates, as indicated in the two succeeding curves. It is noteworthy that these two trends are approximately at the same level at all ages except 55-60.

The uppermost curve shows the rates for the group with both conditions present. It is in this group that

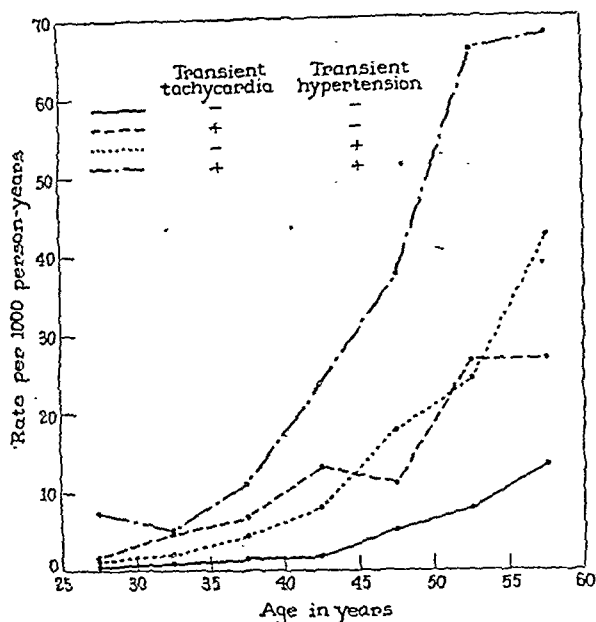


Chart 1.—Rates of developing sustained hypertension, by age, according to the presence or absence of transient tachycardia and transient hypertension.

TABLE 4.—Total Observed Number of Cases of Sustained Hypertension According to the Presence or Absence of Transient Tachycardia and Transient Hypertension, and the Total Number Expected According to the Rates for the Group Without Either Condition

	Without Transient Tachycardia		With Transient Tachycardia	
	Without Transient Hypertension	With Transient Hypertension	Without Transient Hypertension	With Transient Hypertension
Person-years.....	165,216	27,502	11,883	2,546
Cases.....	400	562	120	233
	400	163.6	40.7	47.1
Ratio.....	1.0	3.4	3.4	7.5

the incidence of later sustained hypertension is highest, the rates at the various ages being from five to eighteen times greater than the corresponding control rates.

The same facts are apparent in table 4, in which the ratios have been calculated by comparing the observed number of cases of later sustained hypertension with the number expected on the basis of the control rates at the various ages. The ratios for transient hypertension alone and transient tachycardia alone are identical, whereas the ratio for the group in which the two conditions are combined is more than twice as high.

Disability Retirements with Cardiovascular-Renal Diseases, by Age, According to the Presence or Absence of Transient Tachycardia and Transient Hypertension (chart 2 and table 5).—The same general trends are shown in chart 2 as were apparent in chart 1. There is a progressive increase in the rates for disability retirement with cardiovascular-renal diseases as age increases.

Again the curves for the group with either condition alone are almost superimposed, and the curve for the group with both conditions present shows higher rates throughout.

The ratios obtained by comparing the observed with the expected number of cases (table 5) bring out again the equal importance of transient tachycardia and transient hypertension. When these conditions are combined, the ratio is about 50 per cent greater than when either condition is present alone.

Deaths with Cardiovascular-Renal Diseases, by Age, According to the Presence or Absence of Transient Tachycardia and Transient Hypertension (chart 3 and table 6).—The death rate with cardiovascular-renal diseases for the group with transient tachycardia alone is not conspicuously higher than for the control group,

TABLE 5.—Total Observed Number of Disability Retirements with Cardiovascular-Renal Diseases According to Presence or Absence of Transient Tachycardia and Transient Hypertension, and the Total Number Expected According to the Rates for the Group Without Either Condition

	Without Transient Tachycardia		With Transient Tachycardia	
	Without Transient Hypertension	With Transient Hypertension	Without Transient Hypertension	With Transient Hypertension
Person-Years.....	166,814	29,207	12,429	10,786
Retirements with cardiovascular-renal diseases				
Observed.....	353	343	83	169
Expected.....	353	186.1	41.6	56.1
Ratio.....	1.0	1.9	2.0	3.0

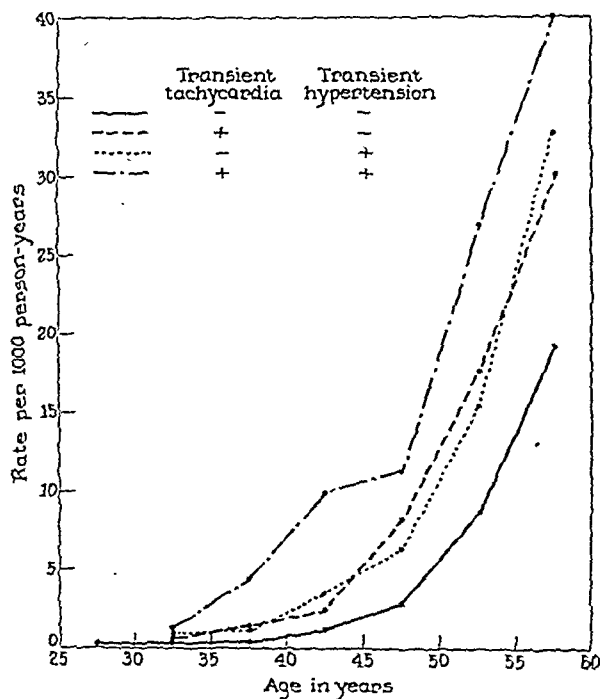


Chart 2.—Disability retirement rates with cardiovascular-renal diseases, by age, according to the presence or absence of transient tachycardia and transient hypertension.

except at age 55 and over. This is in contrast to the group with transient hypertension alone, in which the rates are decidedly higher at all ages. The explanation for this difference is not evident. Where both conditions are present, the rates are distinctly increased.

The same facts are apparent in table 6. The ratio for the group with transient tachycardia alone is not significant. However, for the group with transient hypertension alone the ratio is significant. When both conditions are present the ratio is greater than when either is present alone, although not significantly so.

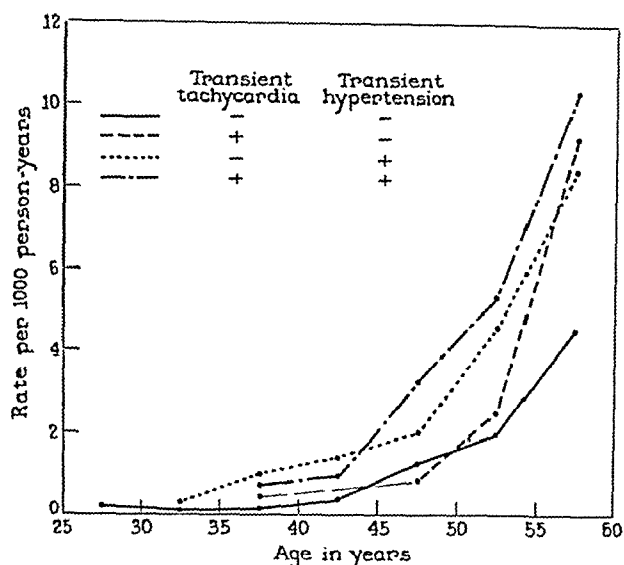


Chart 3.—Death rates with cardiovascular-renal diseases, by age, according to the presence or absence of transient tachycardia and transient hypertension. (No deaths occurred in the age group 40-44, in the category with transient tachycardia alone. The first portion of this curve is drawn lightly to indicate that its direction between the two connecting points is unknown).

It should be noted that the total number of deaths involved is relatively small.

Disability Retirement Rates, Excluding Cardiovascular-Renal Diseases, According to the Presence or Absence of Transient Tachycardia and Transient Hypertension.—For the group with transient tachycardia alone, the retirement rate is higher than that for the controls for practically every diagnosis. The reason for this is not clear. It is of interest, however, that the highest rates are for neuropsychiatric disorders and tuberculosis.

TABLE 6.—Total Observed Number of Deaths with Cardiovascular-Renal Diseases According to the Presence or Absence of Transient Tachycardia and Transient Hypertension, and the Total Number Expected According to the Rates for the Group Without Either Condition

	Without Transient Tachycardia		With Transient Tachycardia	
	Without Transient Hypertension	With Transient Hypertension	Without Transient Hypertension	With Transient Hypertension
Person-Years.....	166,844	39,207	12,429	10,786
Deaths with cardiovascular-renal diseases.....	106	106	15	37
Expected.....	106	50.2	11.7	15.0
Ratio.....	1.0	2.1	1.3	2.5

In the group with transient hypertension alone, the ratio with respect to the control rates is 1.1, which is not significant. However, when transient tachycardia is present, either alone or with transient hypertension, the ratios are significant, being 2.1 and 1.3 respectively. The latter ratio is considerably smaller, however, than that observed for retirements with cardiovascular-renal diseases.

Deaths, Excluding Cardiovascular-Renal Diseases, According to the Presence or Absence of Transient Tachycardia and Transient Hypertension.—The ratio for the group with transient tachycardia alone, which is 1.2, is not quite significant. The ratios for the group with transient hypertension alone and for the group with the two conditions combined are both significant, being 1.3 and 1.4 respectively. Even when neuropsychiatric causes are excluded, these ratios are still greater than unity, although no longer statistically significant.

SUSTAINED TACHYCARDIA

There were 327 individuals in whom sustained tachycardia was observed. Their experience after this occurrence was small because they were retired relatively early in their military careers. The average duration of follow-up was only eighteen months, so that rates for the later development of sustained hypertension would have no significance. On the other hand, the experience was sufficient to determine rates of disability retirement and death with cardiovascular-renal diseases. The observed rates were much in excess of those of the control group and of the group with transient tachycardia.

SUMMARY AND CONCLUSIONS

1. A statistical analysis was made of the medical records of 22,741 Army officers to determine the prognostic significance of transient tachycardia noted in the course of annual physical examinations. The same records were used which furnished the source of material for earlier papers in this series. The method of person-years was employed in the analysis.

2. The indexes chosen to demonstrate the influence of transient tachycardia on the subsequent state of health and cause of death were the later development of sustained hypertension, and disability retirement and death rates with cardiovascular-renal diseases.

3. The frequency of transient tachycardia increased somewhat with age, up to 45; at this point a plateau apparently was reached. The frequency was considerably less than that found for transient hypertension.

4. The group with transient tachycardia showed higher rates for later sustained hypertension and for retirement with cardiovascular-renal diseases than did the control group. The rates were similar to those for the group with transient hypertension.

5. In the group with transient tachycardia, the death rate with cardiovascular-renal diseases was not significantly greater than in the controls. This was in contrast to the group with transient hypertension, in which a significant increase was demonstrated. The reason for this difference was not evident.

6. When both transient tachycardia and transient hypertension were present, the incidence of later sustained hypertension was more than twice as great as when either condition was present alone. The incidence of retirements and deaths with cardiovascular-renal diseases was also higher, but to a less pronounced degree.

7. In a small group with sustained tachycardia, the rates of retirement and death with cardiovascular-renal diseases were far in excess of those of any other group considered.

8. Transient tachycardia due to emotional disturbance or some other cause not discernible, like transient hypertension of similar origin, is often a precursor of hypertensive vascular disease. In this respect the two conditions are of equal importance.

LOCAL USE OF PENICILLIN IN
INFECTIONS OF THE EAR,
NOSE AND THROAT

RESULTS OF TREATMENT

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AND

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In order to evaluate the local use of penicillin in infections of the ear, nose and throat, a study of a group of patients was begun in February 1945 for the purpose of taking advantage of the seasonal peak in the incidence of upper respiratory infections. The study continued for three months. During this period approximately 500 patients were treated. Of this group the case records were complete enough in 339 to be used for statistical purposes. Cultures were obtained in 403 patients, and these results are also tabulated.

Although the exciting cause of acute rhinitis (the common cold) is generally accepted to be a virus, its effects are relatively transient. It is the activation of a host of pathogenic pyogenic organisms by the virus which produces the many local and remote pathologic processes which constitutes the main problem in the management of upper respiratory infections. Fortunately, the majority of these secondary as well as primary invaders are susceptible to penicillin, and since the drug can be applied topically in most instances in adequate concentrations to be effective, infections of the ear, nose and throat and adjacent structures offer an ideal field for the study of this antibiotic agent. None of these patients received penicillin in any way other than locally, and none received any other chemotherapeutic agent. Only commonly employed symptomatic and supportive measures were used in conjunction with the local use of penicillin.

After study of the meager literature and discussion, it was decided to employ

1. Solutions of 500 units per cubic centimeter of the sodium salt in isotonic solution of sodium chloride as a spray and by drop, since stronger solutions might be irritating and weaker ones were apt to become too dilute after mixing with retained body secretions.

2. A base of a water soluble jelly whose pH would not inactivate the penicillin or disturb the nasal mucosa, 1,000 units per gram

3. Lozenges of an inert base such as lactose, 800 units per lozenge

Methods of application were:

For the ear—Instillation of 5 to 6 drops every two hours during the waking period, allowing the drug to remain in the external canal of the upturned ear for five to fifteen minutes. In some instances gentle, positive pressure was used to force the solution through the tympanum and eustachian tube

For the nose: The spray was used every one or two hours during the waking period for two days, then every three to four hours for two days. The jelly was instilled into the nose at bedtime in some instances

For the sinuses: If lavage was indicated, isotonic solution of sodium chloride was employed and 2 to 5 cc. of the solution

or water soluble base jelly was instilled through the cannula at the completion of the irrigation.

For the throat: Lozenges were allowed to dissolve slowly on the tongue every one or two hours. In many instances the nasopharynx and pharynx were sprayed with the solution at the same time, either transnasally or transorally.

For the mouth and gums: The lozenges alone were used

All material was kept under refrigeration until given to the patient, and repeated bacteriologic testing showed no deterioration in the product while under refrigeration and no deterioration at room temperature within the period it was to be used by the patient. The amounts dispensed were solutions in 30 cc. bottles, lozenges in vials of twelve and water soluble jelly in collapsible tubes of 16 Gm. For office use the solution and jelly were kept under refrigeration in sterile rubber-capped bottles.

RESULTS

Acute Rhinitis.—Since acute rhinitis (the common cold) is the activator of most infections in this field, a small group of patients were selected who were seen

TABLE 1.—*Rhinitis*

<i>Acute Rhinitis (Common Cold)</i>		
Method of Application: Nasal Spray		
Improved	36	within 48 hours
Unimproved	4	within 48 hours
<i>Subacute Rhinitis (Sphenothmoiditis)</i>		
Method of Application: Nasal Spray		
Improved	32	within 48 hours
Unimproved	7	within 48 hours

TABLE A—*Subacute Rhinitis (Sphenothmoiditis)*

	Occurrences	
	Number	Per Cent
31 cases		
1. <i>Staphylococcus aureus</i> hemolyticus	26	28.6
2. <i>Streptococcus viridans</i> (alpha)	11	12.2
3. <i>Nisseria catarrhalis</i>	10	11.1
4. <i>Streptococcus</i> (beta)	9	10.0
5. <i>Pneumococcus</i> —all types	9	6.7
6.	6	5.6
7.	5	5.0
8.	4	4.5
9.	4	4.5
10.	4	4.5
11.	3	3.4
12.	1	1.1

during the prodromal or early phase of the disease and whose critical evaluation of the remedy could be relied on. The results obtained in this small group are considered to be encouraging, since the great majority of them (36) believed themselves definitely improved, against 4 who were unimproved in forty-eight hours. None of these 36 developed any complications and all were well within four to five days. It must be remembered that it is important to differentiate an early acute rhinitis from allergic rhinitis and the initial coryza of certain infectious diseases. This differentiation is not always easy in the early phases of these disorders. Acute rhinitis also varies widely in intensity and duration of symptoms, and the psychologic effect of a new drug must also be evaluated in one's conclusions. Hence, until penicillin becomes plentiful enough to treat large groups in army camps and industrial organizations, it cannot be said that topical application in the early phase of acute rhinitis will or will not be of value.

Sphenothmoiditis.—Under this category were grouped those patients in whom the nasal symptoms of a stuffy nose and postnasal discharge, along with

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The lozenges were prepared by the Hinson, Westcott & Dunning Company, Baltimore

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The penicillin used in this study was furnished by the Commercial Solvents Corporation, Terre Haute, Ind.

The bacteriologic studies were conducted in the Clinical Laboratory, University of Virginia Hospital, under the direction of Dr. W. E. Bray

various other commonly related symptoms, persisted after the acute phase of the infection had passed. These symptoms usually persist for three to six weeks before resolution and may be caused by unusual virulence of the organisms, poor body resistance from any cause or certain deformities of the nasal passages producing mechanical obstruction to proper aeration and drainage. Any one or combination of the foregoing tends toward chronicity of the infection. Of the 39 patients in this group, 32 were improved in forty-eight hours and 7 were unimproved.

In order for penicillin to be effective, we must be able to apply it frequently in adequate concentration to the diseased area, so nasal congestion must be relieved intermittently by a spray of 1 per cent ephedrine in isotonic solution of sodium chloride or 0.25 per cent neosynephrin solution. The patient was instructed to spray the nose with the vasoconstrictor solution three times at three minute intervals every three or four

TABLE 2.—*Chronic Sphenothmoiditis*

Method of Application: Nasal Spray	
Improved.....	7 within 4-5 days
Unimproved.....	13 within 4-5 days
Proetz Displacement	
Improved.....	5 within 8 days
Unimproved.....	4 within 8 days

TABLE 3.—*Maxillary Sinusitis*

<i>Acute Maxillary Sinusitis</i>	
Method of Application: Injection After Lavage	
Well.....	61 patients average irrigations 2.7
Improved.....	6 patients average irrigations 4.5
Unimproved.....	3 patients average irrigations 4.9
<i>Chronic Maxillary Sinusitis</i>	
Method of Application: Injection After Lavage	
Unimproved.....	8 patients average irrigations 10

hours, if necessary. In cases in which there is obstruction to aeration and drainage by deformities of the nasal septum or turbinates or in which the infecting organism is penicillin resistant, one cannot expect improvement.

Sphenothmoiditis, Chronic.—In this category were grouped those patients in whom the postnasal discharge had persisted for a longer time. Associated symptoms were nasal stuffiness, occasional headache, cough, sore throat and hoarseness. Pathologic changes characterized by hyperplasia of the nasal mucosa, proliferation of lymphoid tissue in the nasopharynx and pharynx, and mild lymphedema were frequently noted; likewise, nasal obstruction to aeration and drainage from deformities of the nasal septum and turbinates was often present. The other sinuses in this group were not involved.

The results in a small group of 20 patients were 7 improved in four to five days, 13 unimproved. In an effort to secure a more intimate contact of the penicillin solution to this area, 9 patients were treated daily by the Proetz displacement method. Of this number 5 were improved in eight days, and 4 were unimproved. Persistence in this method should be of value in suitable cases. But for reasons just stated, one should not expect a too favorable response in this group.

Acute Maxillary Sinusitis.—The most frequent complication of nasal infection which calls for active surgical intervention is empyema of the maxillary sinus.

It has been our custom for some years to irrigate the maxillary sinus every second or third day with a canula introduced through one of the natural ostiums, or pars membranacea, using isotonic solution of sodium chloride, whenever this condition is recognized. This procedure is painless, hastens resolution and does not

TABLE B.—*Acute Pharyngitis and Nasopharyngitis*

21 cases	Occurrences	
	Number	Per Cent
1. Streptococcus viridans (alpha).....	18	23.0
2. Streptococcus pyogenes (beta).....	13	17.4
3. Streptococcus nonhemolyticus (gamma).....	9	12.0
4. Staphylococcus aureus hemolyticus.....	9	12.0
5. Staphylococcus aureus (nonhemolytic).....	8	10.7
6. Neisseria catarrhalis.....	7	9.3
7. Vincent's organisms.....	6	8.0
8. Pseudomonas pyocyaneus.....	3	4.0
9. Corynebacterium diphtheriae.....	2	2.7

interfere with the normal physiologic response of the nasal or sinus mucosa. As a result of this experience, resolution could formerly be expected in fourteen to twenty-one days.

Since this sinus is so readily accessible and so frequently involved, it offered an excellent opportunity to test the effects of penicillin when injected after the completion of the lavage. For this purpose 2 to 5 cc. of the solution or 2 to 5 cc. of the water soluble base jelly was used. As a result, of 73 patients so treated, 64 were well after an average of 2.7 irrigations, 6 were improved after 4 to 5 irrigations, and 3 were unimproved after 4 to 9 irrigations. In the 64 patients who were well after 2.7 irrigations, the time interval was six to eight days, a very definite decrease in the time interval and number of irrigations. No further reduction in time should be expected, since six to eight days are necessary for the body defenses to be mobilized and for reversal of the pathologic changes. The fact that penicillin is effective in the presence of pus gives it precedence over the sulfonamide drugs in this condition.

TABLE 4.—*Pharyngitis and Tonsillitis*

<i>Acute Pharyngitis and Nasopharyngitis</i>	
Method of Application: Nasal Spray, Lozenges	
Improved.....	27 within 48 hours; 3 relapsed
Unimproved.....	4 within 48 hours
<i>Acute Tonsillitis</i>	
Method of Application: Lozenges	
Improved.....	7 within 48 hours
Unimproved.....	2 within 48 hours
Oral Spray	
Improved.....	9 within 48 hours
Unimproved.....	1 within 48 hours
<i>Subacute Tonsillitis</i>	
Method of Application: Lozenges	
Improved.....	5 within 3 days
Relapsed.....	1 after 5 days

Chronic Maxillary Sinusitis.—The same procedure was carried out in 8 patients with chronic maxillary sinusitis. None were improved after 10 irrigations. This result was not unexpected, for the pathologic changes here were irreversible and surgery is required. However, we have found that healing is promoted after operation by instillation of a penicillin solution.

Acute Pharyngitis and Nasopharyngitis.—The acute sore throat is a common disorder and, although usually self limited, serious complications are always imminent.

The infectious process tends to spread rapidly over the mucous membrane, and in many instances the process is more severe in the nasopharynx than in the pharynx, although the symptoms are mainly pharyngeal because of the mobility of the tissues. The nasopharynx should always be inspected under these conditions.

Both lozenges and the spray were used, and if the patient was unable to spray the nasopharynx trans-orally he was instructed to use the nasal route. Of the 31 patients in this group, 27 were improved in forty-eight hours, 3 of whom relapsed and the treatment had to be started again; 4 were unimproved.

It must be remembered here that many persistent sore throats with regional adenitis and elevated temperature are probably of virus origin, infectious mononucleosis being an example of this type. None of these disorders would be affected by penicillin. However, in a few instances of infectious mononucleosis in which there was a pronounced ulcerative pharyngitis the

TABLE C.—*Acute Maxillary Sinusitis*

	Occurrences	
	Number	Per Cent
25 cases		
1. <i>Staphylococcus aureus hemolyticus</i>	15	23.4
2. <i>Staphylococcus aureus (nonhemolytic)</i>	11	18.9
3. <i>Streptococcus pyogenes (beta)</i>	8	12.9
4. <i>Streptococcus viridans (alpha)</i>	8	12.9
5. <i>Pneumococcus</i> —all types.....	7	10.7
6. <i>Aerobacter aerogenes</i>	5	7.6
7. <i>Hemophilus influenzae</i>	3	4.4
8. <i>Neisseria catarrhalis</i>	2	3.6
9. <i>Meningococcus meningitidis</i> group 2.....	1	1.6
10. <i>Pneumococcus</i> —could not type.....	1	1.6

TABLE D.—*Acute Tonsillitis*

	Occurrences	
	Number	Per Cent
25 cases		
1. <i>Streptococcus pyogenes (beta)</i>	20	25.6
2. <i>Streptococcus viridans (alpha)</i>	12	21.3
3. <i>Neisseria catarrhalis</i>	9	16.2
4. <i>Staphylococcus aureus hemolyticus</i>	6	10.8
5. <i>Streptococcus (gamma)</i>	4	7.1
6. <i>Staphylococcus aureus (nonhemolytic)</i>	3	5.4
7. <i>Pneumococcus</i> —all types.....	2	3.6

topical application did seem to control the secondary invaders and hasten healing of the pharyngeal and nasopharyngeal lesion.

Acute Tonsillitis.—Lozenges alone were used for 9 patients; 7 improved within forty-eight hours, and 2 were unimproved. The oral spray was used for 13 patients; 9 were improved in forty-eight hours, and 4 were unimproved. For subacute tonsillitis 6 patients were treated by lozenges alone. Of this small group 5 were improved in three days and 1 was unimproved. Acute tonsillitis is also a self limited disease, as a rule, but the toxemia is severe and complications are not uncommon. The treatment with penicillin is simple and seems to be effective.

Otitis Media, Purulent Acute.—The great majority of acute otitic infections are due to penicillin susceptible organisms, but there is no safe nor practical way to apply the drug to the mucosa of this area. However, 31 patients were treated by the use of drops and in a few instances by gentle positive pressure irrigation; 18 were improved in five to seven days and 13 were unimproved, which is approximately the result one would have obtained without any treatment. The results of systemic treatment by the sulfonamides and penicillin so far overshadow any other method of therapy that the use of penicillin locally is unnecessary and futile.

Otitis Media, Purulent Chronic.—If the causative infection is due to penicillin susceptible organisms and there is a large tympanic perforation, without pseudo-cholesteatoma or osteitis, then local treatment may be employed. Instillation of drops was used for 34 such patients; 18 were improved in seven days, and 16 were

TABLE 5.—*Otitis Media*

<i>Purulent Acute Otitis Media</i>	
Method of Application: Ear Drops	
Improved.....	18 within 5-7 days
Unimproved.....	13 within 5-7 days
<i>Purulent Chronic Otitis Media</i>	
Method of Application: Ear Drops	
Improved.....	18 within 7 days
Unimproved.....	16 within 7 days

TABLE 6.—*Postoperative Radical Mastoid Cavities*

Method of Application: Ear Drops	
Improved.....	13 within 7 days
Unimproved.....	5 within 7 days

unimproved in seven days. Under these conditions we feel we are justified in trying local treatment. One of the most gratifying yet unexpected results in this group of patients was the disappearance of the odor. Since the odor is due, as a rule, to penicillin resistant organisms, one can only conjecture as to the reason for this unexpected result. In several cases due to gram positive cocci, it was noted that following treatment these organisms disappeared and their place was taken by one or more of the gram negative bacilli. This

TABLE E.—*Purulent Acute Otitis Media*

	Occurrences	
	Number	Per Cent
24 cases		
1. <i>Staphylococcus aureus hemolyticus</i>	23	32.2
2. <i>Streptococcus pyogenes (beta)</i>	13	18.2
.....	9	12.7
..... (gamma).....	7	9.9
.....	5	7.0
.....	5	7.0
.....	4	5.6
.....	3	4.2
.....	2	2.8

TABLE F.—*Purulent Chronic Otitis Media*

	Occurrences	
	Number	Per Cent
25 cases		
1. <i>Staphylococcus aureus hemolyticus</i>	12	24
2. <i>Streptococcus pyogenes (beta)</i>	8	16
.....	6	12
.....	5	10
.....	4	8
.....	4	8
.....	3	6
.....	3	6
3. <i>Pneumococcus</i> —all types.....	3	6
10. <i>Escherichia coli</i>	2	4

change of flora did not mean the cessation of drainage and clinical cure but oftentimes an even more intractable infection.

Postoperative Radical Mastoid Cavities.—Following radical mastoidectomy, we used the drops locally for 18 patients. Within seven days 13 were improved and 5 were unimproved. In some instances a catheter was sewed into the depths of the wound through the incision and connected with a 50 cc. syringe fastened to

the bed post. A closed method of irrigation was thereby established. These wounds all remained clean as long as this procedure was maintained. When the patient was allowed out of bed after four to five days, the tube was withdrawn and the local instillation of drops was started. The cases listed as improved were those in which there was but little infection, and healing was rapid. Reinfection in old, healed, radical cavities usually respond quite well to the same treatment, provided the organisms are susceptible.

Vincent's Gingivitis and Angina.—A small group of 8 patients with proved Vincent's infection of the gingiva, mouth or pharynx were treated by the frequent use of the lozenge. All were improved in three to five days. One of the most gratifying findings here was in those cases of gingivostomatitis in which the severe symptoms were promptly alleviated, the patient being able to eat fairly comfortably in twenty-four hours. Proper medical and surgical treatment was, of course, also employed.

Toxic or Allergic Reactions.—No systemic toxic nor allergic reactions were noted in this series. However, in 6 patients under treatment for otitic infections, a pronounced dermatitis of the auditory canal and auricle occurred, and treatment had to be discontinued. Whether this reaction was due to local sensitization

TABLE 7.—*Vincent's Gingivitis and Angina*

Method of Application: Lozenges	
Improved.....	8 within 3-5 days

or to the release of certain penicillin resistant organisms whose activity had formerly been held in abeyance was undetermined.

CONCLUSION

The local use of penicillin has proved helpful in the control of acute and subacute infections of the nose, sinuses, nasopharynx, pharynx and mouth and of occasional benefit in certain cases of chronic otitis media. It has also proved beneficial postoperatively in mastoid and sinus surgery.

It has been of no value in acute otitis media and of no or negligible value in chronic sinusitis and chronic sinusitis associated with allergic rhinitis.

Its usefulness in the treatment of the common cold is still undetermined.

In those cases in which it has proved beneficial, its effect will no doubt be enhanced by its combined use systemically or by the combined use of an appropriate sulfonamide.

Local application does not produce any dramatic change in the bacterial flora present in the nose and throat. Its effect seems to be more bacteriostatic in nature than bactericidal. In several patients who had recently recovered from scarlet fever, we were unable to alter the bacterial flora on repeated cultures, after local treatment.

The solution, 500 units per cubic centimeter, and the lozenge provide the simplest and most effective means of application. The water soluble jelly was useful at times for instillation into the nose at bedtime and in the treatment of atrophic rhinitis, in which the nasal symptoms were ameliorated.

We are hopeful that new antibiotics will soon be available, particularly for the gram negative organisms and for the more common bacteria which have become sulfonamide or penicillin resistant.

104 East Market Street.

ABSTRACT OF DISCUSSION

DR. ARTHUR W. PROETZ, St. Louis: This careful study and cautious evaluation of the local effects of penicillin goes far to clarify the problem and should prevent useless medication. A new therapeutic agent should be studied by capable observers under scientific conditions and with adequate controls rather than be turned loose on practicing physicians, who, honest though they may be, are untrained in scientific methods and flood the literature with unimportant communications. By the time the effect of these misleading opinions has been brushed away months have passed and tons of useless medicaments have been administered. My own experience with penicillin, much less extensive than that of Dr. Woodward and Dr. Holt, is limited to its effect on the nose. It would suggest that penicillin may be of some minor help in the control of acute and subacute infections of the nose. I am not at all convinced either by my own observations or by those in the present paper that this therapeutic value is any greater than that of half a dozen other agents at hand. The common cold, for example, should improve under almost any treatment within the thirty-six to forty-eight hours stipulated in table 1; a small number will improve without any treatment in that time. The results of my own introduction of penicillin solution (250 units per cubic centimeter) were disappointing, as were those of Dr. Woodward. Almost any of the commonly used solutions should produce some improvement in a chronic sphenoiditis within eight days. Whether this is permanent or not depends on the nature of the pathologic process in the sinus and not on the irrigating solution. The concentration of 250 units per cubic centimeter in my own cases was determined by my previous observations in the laboratory that stronger solutions had some slight detrimental effect on the ciliary activity. The effects of the local application of penicillin on the upper respiratory tract closely resemble those of a great number of other topical applications.

DR. O. E. VAN ALYEA, Chicago: The authors recognize that to be effective penicillin must be of sufficient concentration and in constant contact with the infected tissues for a considerable time. This no doubt accounts for the very good results obtained in their cases of pharyngitis and tonsillitis with the constant use of lozenges augmented with nasal and pharyngeal sprays. Penicillin was shown to be less effective in treatment of nasal and sinus infections, and this is easily understood when it is realized that no medicament remains long in contact with the ciliated mucosa of the nose and sinus because of the protective nature of the mucous film which lines these cavities and the action of the cilia, which quickly propels foreign material to the sinus outlets and to the nasopharynx. The authors found the penicillin drops to be of little value in the treatment of acute otitic infections. Although 18 of the 31 cases showed improvement in seven days, similar or better results have been attained by the use of other cleansing agents. In the chronic suppurative ear cases the use of the drops was also disappointing but was found to be of distinct value in eliminating the odor from the discharge. Following mastoid surgery, penicillin instilled by way of a catheter kept in the wound maintains a clean field and in that respect is of distinct value.

DR. C. H. McCASKEY, Indianapolis: Considering the fact that penicillin is practically a new drug and that the time was so short in which the authors had to carry on their experiments, and especially with the small amount of work that had been done by other investigators, these doctors had to depend entirely on their own findings and methods of procedure. Some of the important points which they made in this discussion are as follows: 1. They attempted to keep a fairly normal pH for their spray solution, which is important in any solution used as a nasal spray. 2. They advised adequate doses and the frequent use of their solution in nasal infections. 3. They pointed out that in acute purulent maxillary sinusitis the drug was effective but that in chronic maxillary sinusitis the results were not good. 4. They brought out the point that in virus infections the drug was not of much value but that in many of the secondary infections following virus infections it was valuable. 5. They stated that their results in acute and chronic purulent otitis media were not of great value. My experience with penicillin in infections of the ear, nose and throat has been limited.

ARTHRITIS RESEMBLING REITER'S
SYNDROME

OBSERVATIONS ON TWENTY-FIVE CASES

CAPTAIN JOSEPH L. HOLLANDER
CAPTAIN CHARLES W. FOGARTY JR.
CAPTAIN NATHAN R. ABRAMS
AND
MAJOR DAVID M. KYDD
MEDICAL CORPS, ARMY OF THE UNITED STATES

At Ashburn General Hospital, a center designated by the Army for the treatment of arthritis, we have had the opportunity of seeing many unusual manifestations of rheumatic disease. We have been impressed by the apparent frequency of a syndrome characterized by arthritis, nonspecific urethritis and often conjunctivitis. Because of the sparsity of previous clinical reports, we believe it advisable to report our preliminary observations.

In 1916 Reiter¹ described a clinical syndrome with these characteristics. Since that time only 50 cases in twenty-six communications have been reported, and only a few of these reports have appeared in American journals.² It is noteworthy that 22 of the reported cases have occurred in soldiers on active duty in World Wars I and II.

Various organisms, including a spirochete, a staphylococcus, an enterococcus and a filtrable virus, have been suggested as causal agents, but none have been confirmed, and the symptom complex still remains a syndrome of undetermined etiology. In 1942 Bauer and Engelman,³ in reporting 6 cases, described the results of a biopsy of synovial membrane in 1 case and reported findings suggestive of infectious disease, but distinct either from the ordinary specific infectious arthritides or from rheumatoid arthritis. Other reports have disclosed that the entire triad has not always been present, and, in some, other symptoms including diarrhea, balanitis and nongonorrheal keratoderma have occurred.⁴

Our series consists of 25 cases, in 11 of which the triad of arthritis with an acute onset, purulent urethritis and suppurative conjunctivitis occurred. The remaining 14 cases presented an identical clinical pattern except that the conjunctivitis was absent. For the sake of comparison and discussion, those with the entire triad are listed as "typical" (group 1) and the others as "atypical" (group 2).

The patients came from all branches of the Army, and the disease appeared in camps in the United States as well as in all the major theaters of operation. Necessarily many of our observations include those recorded at other military installations. There were 9 officers in the series. Ages varied from 18 to 37 years, with an average of 26 years. Although many of our patients

are nurses, Red Cross workers and members of the WAC, no case resembling this syndrome was observed in the female sex. Only 2 patients gave a positive family history of rheumatic disease. None gave a history of previous joint disease other than a few cases of definite traumatic arthritis. None of the patients in group 1 admitted sexual exposure within one month preceding the onset. Five patients in group 2 gave such a history. The results of other observations are given in the table.

Urethritis was the initial symptom in 19 cases, arthritis in 2 and diarrhea in 4. The time required for the complete clinical picture to develop varied from two to forty-two days, with an average of fifteen days. In those cases in which arthritis was the initial symptom urethritis developed within three days.

The urethritis was purulent in nature. Repeated smears and cultures of the discharge were negative for gonococci. The urethritis did not appear to be influenced significantly by adequate doses of the sulfonamides (23 cases) or penicillin (19 cases) in doses of 100,000 to 3,000,000 units. In practically all cases, however, it disappeared eventually, but recurrences were noted in a few. In 4 cases a residual prostatitis

Comparison of Cases With and Without Conjunctivitis

	Group 1	Group 2	Total
Cases.....	11	14	25
Remote history of gonorrhea...	4	3	7
Sexual exposure.....	0	3	3
Initial Symptom:			
Urethritis.....	8	11	19
Diarrhea.....	2	2	4
Arthritis.....	1	1	2
Average days between initial symptom and complete syndrome.....	14	16	
Joint Involvement:			
Symmetrical.....	5	5	10
Asymmetrical.....	6	9	15
Diarrhea.....	2	4	6
Penile lesion.....	4	4	8
X-Ray changes.....	7	11	18

was noted. In these, culture of the prostatic secretion on selective mediums showed either no growth or *Staphylococcus albus*.

Eight cases showed a balanitis or perimeatal ulceration. Dark field examinations in these cases were consistently negative. A recurrence of balanitis was noted in 2 cases.

A mild diarrhea of short duration was the initial symptom in 4 cases and was concomitant with the arthritis in 2 others. Stool examinations and cultures revealed no specific organisms.

Purulent conjunctivitis developed either just before or shortly after the onset of the arthritis in 11 cases. This was usually mild and disappeared as promptly on symptomatic therapy alone as when a sulfonamide or penicillin was administered. It lasted from two days to three weeks, an average duration of four days. Cultures of the discharge were either sterile or showed a scant growth of *Staphylococcus albus*.

Concurrent with the acute phase of the syndrome, circinate lesions developed on the penis in 1 case and keratotic lesions on the legs and feet. The penile lesions were typical of balanitis circinata. The skin lesions were characteristic of keratoderma blennorrhagica and lasted two months. In another case subungual abscesses appeared in six of the fingers.

From the Rheumatic Disease Section of Ashburn General Hospital, McKinney, Texas.

Read before the annual meeting of the New York Rheumatism Association, May 9, 1945.

1. Reiter, H.: Ueber eine bisher unerkannte Spirochäteninfektion (Spirochaetosis arthritica), *Deutsche med. Wchnschr.*, 42: 1535, 1916.

2. Frühwald, R.: So Called Spirochaetosis Arthritica, *Urol. & Cutan. Rev.*, 32: 7, 1928. Colby, F.: Renal Complications of Reiter's Disease, *J. Urol.*, 52: 415, 1944. Rosenblum, H. H.: So-Called Reiter's Disease, *U. S. Nav. M. Bull.*, 44: 375, 1945. Lever and Crawford.⁴

3. Bauer, W. W., and Engelman, E. P.: A Syndrome of Unknown Etiology Characterized by Urethritis, Conjunctivitis and Arthritis (So-Called Reiter's Disease), *Tr. A. Am. Physicians* 57: 307, 1942.

4. Lever, W. F., and Crawford, G. M.: Keratosis Blennorrhagica Without Gonorrhea (Reiter's Disease?), *Arch. Dermat. & Syph.*, 40: 389 (June) 1944.

Characteristic of the entire group was the explosive onset of an acute polyarthritis accompanied by a moderate elevation of temperature. The chill which so often initiates acute specific infectious arthritis was significantly absent in every case. The affected joints were red, hot, swollen and tender. The involved joints are shown in figure 1. Noteworthy is the fact that many of these cases were initially regarded as either acute rheumatic fever or gonorrheal arthritis.

During this acute stage the leukocyte count averaged 12,000 per cubic millimeter. The sedimentation of the erythrocytes was rapid in all cases. The peak was not reached until approximately four to six weeks after the onset of the arthritis, when the urethritis and conjunctivitis had subsided and the inflammation of the joints was less acute.

In 8 cases a joint was aspirated. The fluid contained from 9,000 to 14,000 leukocytes per cubic millimeter, of which 65 to 74 per cent were neutrophils. Smears were negative and cultures on routine and

cytosis disappeared within seven to ten days. The sedimentation rate returned to normal in approximately three months in most cases.

The duration varied. Some patients became asymptomatic in three months; others still under observation have symptoms after eight months. The average dura-

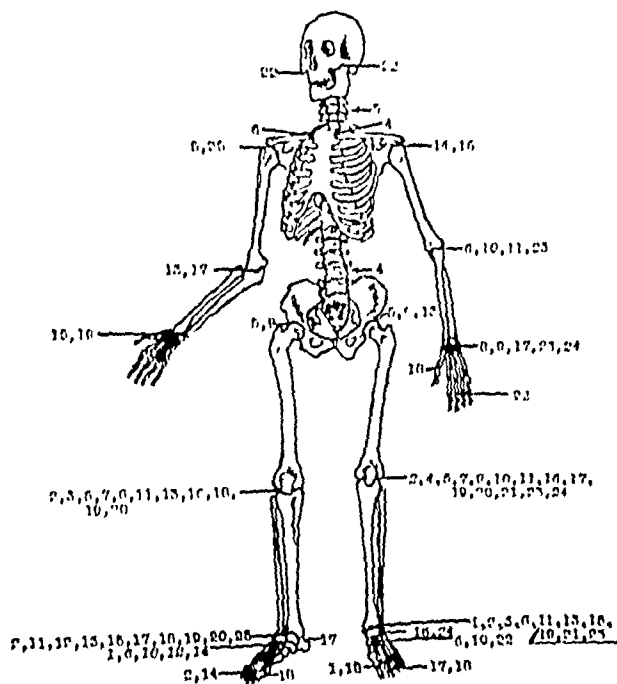


Fig. 1.—Distribution of joint involvement by case numbers.

selective mediums were sterile. Gonococcus complement fixation reactions on blood and synovial fluid were negative in the 3 cases in which the test was employed.

Roentgenographic abnormalities were noted in 18 cases. These changes first appeared approximately two months after the onset of the disease. Osteoporosis of the bone ends was the characteristic finding. Often this was spotty, and never was it sharply defined. In addition, periosteal proliferation developed in 3 cases. Subsequent roentgenograms in 2 cases showed a disappearance of this. Actual bony destruction in a small joint was noted in only 2 cases.

The clinical course showed little variation except for the total duration of the disease. As a rule, the acute stage lasted from four to six weeks. In only 1 case was there further progression to new joints after this time. Following the acute stage, most joints returned to normal. In many, however, a few of the most severely affected joints continued to be swollen and stiff without signs of acute inflammation. Fever and leuko-



Fig. 2.—Synovia from the suprapatellar pouch, left knee; $\times 60$.

tion in 6 patients who returned to duty was five months. Recurrences of joint swelling and pain were encountered in 7 patients. Three patients gave a history of a previous attack of the symptom triad followed by complete remissions of nine, sixteen and twenty-nine

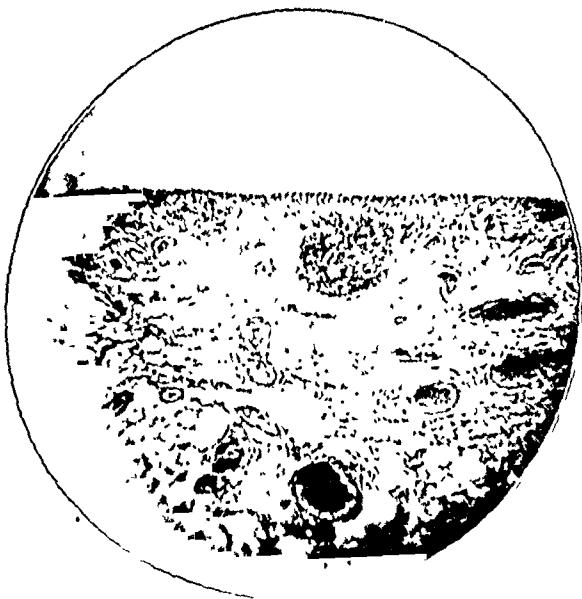


Fig. 3.—Synovia from the infrapatellar fat pad; $\times 60$.

months respectively. Unilateral superficial keratitis developed during the course of the disease in 2 patients who had had an early conjunctivitis and in 1 who had had no previous ocular abnormalities. One patient without previous eye symptoms developed a moder-

ately severe iritis. No permanent ocular damage was encountered.

An arthrotomy was performed on the right knee of 1 patient in the eighth month of his disease. The synovia was congested and presented a reddish purple appearance. No gross thickening was noted. There were several small circumscribed areas of white fibrinous-like material lying on the surface of the synovium. Portions of synovia from the floor of the suprapatellar pouch just proximal to the articular surface of the condyle and from the congested infrapatellar fat pad were removed for section. The cartilage appeared normal.

Microscopic examination revealed intense inflammatory reaction, which was limited to the superficial synovial layers and did not involve the supporting collagen, fibrous connective tissue or vessel walls (fig. 2). The synovium was thrown into large club-like projections in which the abundant capillaries were all dilated. Each projection was distended by a heavy lymphocytic infiltrate mixed with a smattering of plasma cells and a few neutrophils. No fibrinous exudate was observed. The intima was approximately six to ten layers deep. Only a few perivascular focal collections of lymphocytes and plasma cells could be found. There were no well defined new capillaries, and the intense hyperemia consisted of dilatation of preexisting capillaries (fig. 3).

On the basis of our observations we believe that Reiter's syndrome may exist even when the triad of arthritis, nonspecific urethritis and suppurative conjunctivitis is incomplete. In our series conjunctivitis was commonly absent.

We believe, moreover, that this disease is a clinical entity. It differs from the acute specific infectious arthritides in many respects. The course in practically all our patients has been that of a self-limited disease without residual damage to any body structure in spite of the lack of definitive therapy. Prior to the use of sulfonamides and penicillin, no group of patients with acute specific infectious arthritis had such a favorable prognosis. Recurrences such as occurred in our patients are not characteristic of specific forms of arthritis. The initial rise of temperature, white blood count and the synovial fluid cell counts were considerably lower than are commonly observed in the specific types. Response to chemotherapy was lacking.

Differentiation from rheumatoid arthritis is more difficult clinically. The association of nonspecific urethritis with or without suppurative conjunctivitis is not common in the latter. Furthermore, recurrences of such a triad have not been described in rheumatoid arthritis. While a biopsy was taken of only one joint in our series, the findings were similar to those in the case reported by Bauer and Engleman even though it was performed later in the course of the disease. The intense hyperemia and cellular reaction, limited to the superficial layers of the synovium, was quite striking and distinctly different from the appearance in rheumatoid arthritis.

CONCLUSION

From our observations in 11 cases of polyarthritis, nonspecific urethritis and conjunctivitis, identical with those described previously as the Reiter syndrome, and 14 cases similar to this group except for the absence of conjunctivitis, we believe that these two groups are similar and that they represent a clinical entity distinct from specific infectious arthritis or rheumatoid arthritis.

THE COMING AGE OF INDUSTRIAL MEDICINE

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Industrial health in wartime is a very critical aspect of our whole national manpower problem. Wartime taught us that the resources of human capacity are the greatest resources in any country. We started out in 1940 to train 900,000 men a year in a peacetime military training program. That was easy to accomplish, and our manpower seemed completely adequate for such a purpose. We have learned, as a result of our experience in the war, that our manpower is neither inexhaustible nor is it always available. We cannot waste or neglect it. On the contrary we must carefully nurture, husband and train it and wisely allocate and employ it if we are to achieve our national purposes. It has been the function of the Selective Service System and the War Manpower Commission to supervise this utilization of manpower and to bring sharply to mind its problems in wartime which may be a guide to our postwar needs.

TABLE 1.—Analysis of the Total Manpower Situation,
Jan. 1, 1945

Total population	138,000,000
Total male population.....	69,000,000
Total number of registrants 18-45 years of age.....	45,000,000
Total number of registrants 18-44 years of age.....	29,000,000
Total number of registrants 18-37 years of age.....	22,000,000
(liable for military service)	
Total number of registrants who have been in armed forces..	10,700,000
Registrants 18-37 years of age rejected for service.....	4,500,000
Registrants 18-37 years of age in other classes.....	6,800,000

One of the early outstanding problems was the significance of the health and fitness of individuals. This was brought sharply in relief as the military authorities indicated that older men were not equal to the onerous duties of battle and the demand for younger men mounted. With all the conflicting needs of manpower for combat and war production and for food and with goals that would have been in ordinary times impossible to meet, it may be recorded that the handling of the manpower program was adequate for the situation. We raised an Army and Navy of 12,000,000 men. We had a labor force of more than 50,000,000 men and women, and the final test of the success of the manpower problem was the victory both in Europe and in the Pacific.

SIZE OF THE MANPOWER PROBLEM

Some statistics will indicate the size of the manpower problem with which we were dealing in wartime. The situation on Jan. 1, 1945 was as shown in table 1.

THE MILITARY MANPOWER PROBLEM

Military manpower needs were determined and they were effectively supplied. Selective Service procured registrants of military age and sent forward to the induction stations, with or without examination, those believed capable of service. The armed forces induction

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In the preparation of this paper assistance was given by Col. Edward A. Fitzpatrick, A. U. S., Col. John N. Andrews, Infantry, Col. William M. Wilder, Infantry, and the Division of Research and Statistics of the Selective Service System.

stations made physical examinations and inducted into the service those men not deferred and considered physically, mentally and morally fit. The armed forces gave all basic and other forms of training prior to combat, discharged on Certificates of Disability all those found inapt or adjudged unfit, accorded to all members of the fighting forces the finest medical service that this country could provide, rehabilitated defects on an unprecedented scale, considered assignments judiciously and as far as possible utilized manpower to best advantage. Thus the military authorities were able to build the finest fighting force in history from the manpower available in the nation. But, in doing so, Selective Service and the armed forces uncovered some national weaknesses of which the nation and we, as doctors, must take cognizance.

TABLE 2—Estimated Principal Causes for Rejection of Registrants 18-37 Years of Age in Class 1-F and Classes with F Designation* April 1, 1945

Principal Cause for Rejection	Number			Per Cent		
	Total	White†	Negro	Total	White†	Negro
Total..	4,629,000	3,713,000	886,000	100.0	100.0	100.0
Manifestly disqualifying defects	189,100	121,800	67,300	10.6	11.1	7.4
Mental disease	809,300	717,200	92,100	17.5	19.2	10.4
Mental deficiency‡	611,800	555,000	56,800	13.0	9.6	32.6
Physical defects	2,914,300	2,188,100	726,200	62.5	58.1	18.1
Musculoskeletal	159,300	111,500	47,800	7.0	8.1	4.4
Cardiovascular	101,000	75,500	25,500	6.5	6.8	5.0
Respiratory	201,800	104,000	97,800	6.7	2.8	17.9
Genital	251,200	225,200	26,000	6.5	6.0	1.1
Neurologic	210,100	206,300	3,800	6.0	6.5	2.7
Eyes	227,700	201,000	26,700	4.9	5.1	2.0
Ears	180,200	175,000	5,200	3.9	1.7	0.0
Tuberculosis	135,000	112,300	22,700	2.9	1.0	1.4
Jaws	82,100	72,100	10,000	1.8	1.9	1.1
Underweight and overweight	60,800	61,100	-300	1.3	1.7	0.0
Pert	61,000	10,800	1,800	1.3	1.1	1.6
Abdominal viscera	60,100	67,000	-6,900	1.3	1.0	0.1
Kidney and urinary	50,300	15,000	1,800	1.1	1.2	0.1
Vascular system	10,000	11,000	-1,000	0.2	1.1	0.6
Genitalia	11,700	10,000	1,700	0.2	1.1	0.2
Endocrine	11,700	11,000	700	0.2	0.9	0.2
Teeth	10,000	27,100	-17,100	0.2	0.7	0.1
Neoplasms	20,700	20,500	200	0.4	0.7	0.1
Skin	20,700	20,500	200	0.4	0.7	0.1
Nose	20,000	20,000	0	0.4	0.7	0.1
Hemorrhoids	18,000	15,700	2,300	0.4	0.1	0.1
Gonorrhea and other venereal	18,100	7,300	11,800	0.4	0.2	1.1
Mouth and throat	12,000	11,200	800	0.3	0.1	0.1
Infectious and parasitic	6,500	1,000	600	0.1	0.1	0.1
Throat	1,100	1,700	-600	0.1	0.1	0.1
Blood and blood forming	4,200	1,700	500	0.1	0.1	0.1
Other medical	11,500	20,000	-8,500	0.2	0.8	0.5
Nonmedical	71,500	69,000	2,500	1.5	1.0	1.1

* Includes registrants in classes 1A, B and C with F designation.
† Includes all races other than Negro.
‡ Includes (1) registrants with more than one disqualifying defect who were rejected for educational deficiency prior to June 1, 1941, (2) registrants rejected for failure to meet minimum intelligence standards beginning June 1, 1941 and (3) morons, imbeciles and idiots rejected November 10, 1941.

REJECTION OF REGISTRANTS BY CATEGORY AND NUMBER

Table 2 gives in broad categories the number of rejections as of April 1, 1945. While the rejection rate is a less reliable index of the national health picture than is the incidence of defects, yet it gives some insight of our shortcomings in health, at least from a military point of view. The table shows that the number of rejections in the IV-F pool is 4,629,000 as of April 1, 1945 and also reveals the causes for these rejections. Medically, rejection does not mean that these four and one-half million men are cripples but rather that they are below military requirements. The standards, how-

1. This paper was for a February 1945 meeting, presented on request and brought up to date.

ever, have been investigated thoroughly by a Presidential commission and are considered rock bottom from a military point of view.

THE CIVILIAN MANPOWER PROBLEM

Like "taxes," the civilian manpower problem is with us always both in peace and in war. In war it is especially difficult, because if we take men out of the civilian labor force and put them in the Army we increase the demands of civilian labor force to arm, clothe, feed and maintain these men as soldiers. The constantly fluctuating and unsettled conditions of wartime adds to the problem, factors which do not exist in peacetime.

The size and composition of the labor force for 1942, 1943 and 1944 and the distribution of working personnel is indicated in table 3. From the table it appears that as men in industry decreased in number from 37,610,000 to 34,060,000 the number of women increased by more than 2,000,000, from 16,020,000 to 18,150,000. The additional million is probably made up largely from the ranks of the previously unemployed.

PROBLEM OF RURAL INDUSTRIAL MANPOWER

The problem of industrial manpower has been evident in the country as in the city. The problem has become no less important in wartime as in peace. It becomes more important in view of the diminishing labor force on farms. Many expedients were developed to spread the regular labor force on farms from cities by the crea-

TABLE 3—The Labor Force, 1942, 1943 and 1944

	December 1942	December 1943	December 1944
Labor force	57,610,000	51,060,000	52,210,000
Men	37,610,000	34,060,000	34,060,000
Women	16,020,000	17,000,000	18,150,000
Agricultural	7,180,000	6,800,000	6,110,000
Nonagricultural	14,840,000	10,200,000	12,040,000
Unemployed	1,000,000	800,000	600,000

Nonagricultural employment includes mining, construction, transportation and public utilities, government, finance, service, trade, manufacturing and miscellaneous.

tion of women land armies and by special training methods and provision of transportation of itinerant workers. The same problems exist for the farm as for the factory. The problem of health and fitness was as significant in the country as in the city, and there was no superiority in the physical fitness of farmers as compared with industrial workers. The farmer and the food processor have met the demands of our civilian and military manpower as has the industrial worker.

A SUMMARY VIEW OF THE WARTIME INDUSTRIAL HYGIENE PROBLEM

Industrial health, including the health of the agricultural workers, is an important phase of the wartime manpower problem. We have not thought of it in such terms, but it was there all the time. The military manpower had the spotlight. But the no less necessary but less spectacular war and food production were progressively required to reach extraordinary goals not only with less manpower but with a manpower less physically fit. The process of selection selected the physically fit (I-A) and left those not fit for military service (the IV-F's). There was a further fact of great significance that great numbers of doctors and dentists entered the military service, and the industrial and agricultural population lacked adequate medical care according to peacetime standards.

ANTICIPATING POSTWAR PROBLEMS

In the postwar world this problem of industrial health will be even more significant. There will be cutbacks, frictional unemployment and reconversion. There will be the necessary readjustments. There will be more than 10,000,000 returning from the armed forces, many handicapped. There will also be the need of the readjustment of the medical and dental professions, not only to care for the civilian population, but to care for the hospitalized veterans of the war.

INDUSTRIAL EMPLOYMENT CONDITIONS

During war, manpower engaged in industry was characterized by high rates of turnover and absenteeism. Several factors contributed to the cause. Men moved by a spirit of adventure want to "go places and see things" and hence take advantage of every opportunity for change. The more shiftless avoid work completely as their finances permit. Many war workers live in mushroom settlements which are low in sanitary provisions and in medical and dental facilities. But, above all else, the greatest difficulty is found in the ranks of the workers themselves. Though many in industry are deferred for special skill, yet industry as a whole has been forced to accept what the military establishment has rejected from their point of view as unsuitable. More than 5,000,000 men have been discarded as fighters and these men were left for industry and other occupations to absorb. In addition, at present, pre-employment examinations are at a very low ebb. Hours are long and the work week consists often of six or even seven days. Women are employed as substitutes as the healthy males are inducted. War working conditions are poor and below peacetime standards.

Despite all the handicaps faced by management and labor, production has proceeded at a very high level. It has been estimated that since July 1940 the war production plants, including clothing manufactured for the armed forces, have turned out war material valued at more than \$170,000,000,000 (August 1943 price level). While this tremendous output was being accomplished, livestock production steadily increased. In 1944 this production expanded from 29,659,000,000 pounds to 41,755,000,000 pounds, or an increase of 41 per cent over the average for the years 1935-1939. Total agricultural production in 1944 was increased by 33 per cent over the average for the period 1935-1939.²

MEDICAL ATTENTION TO HYGIENE AND HEALTH
OF WAR WORKERS

The problem of hygiene and health were early recognized. They were met through the cooperation of medicine, public health, management and labor, and the government—especially through the help of local health authorities. In most instances each problem presented received prompt and effective attention. Considering the magnitude of the problems involved, the results have been eminently satisfactory. Medical cooperation has been a real factor in our splendid record of production achievement.

FOOD PRODUCTION: THE FARMERS, THEIR DEFERMENT AND THEIR HEALTH

The health of the farmer is a national problem. Food production also is obviously essential to the welfare of the nation. Hence farmers, as essential workers, received special consideration in deferments under the Selective Service System. In this country there are at the present time 6,000,000 farms and 12,000,000 farm-

ers considered as family and hired workers. As of Sept. 1, 1943, 1,600,000 farmers 18 to 37 years of age were being deferred and an additional 550,000 farmers were liable for military service but were not being called at that time because of their age, 38 to 45 years. Now in 1945 the situation is essentially unchanged. Deferments for farmers 18-37 years of age are still running in the neighborhood of 1,600,000.

Since 1939-1940 some 4,500,000 men have left the farms and approximately 1,200,000 have been inducted. Most of the others have found their way into cities and towns and have entered some form of industry. As a result, farm labor is scarce. Despite manpower shortage, our food production is high; in fact, the highest in our entire history. Food production has been sufficient to meet the needs of fighting men and our people at home, with enough left over to supplement materially the food supply of our allies. Food restrictions have not been sufficient to date to affect in any way the health of our people. In fact, nutrition is probably better now than in peacetime because of better wages and the greater purchasing power among the poor.

RURAL HEALTH AND MEDICAL CARE

Surveys of the health situation among the rural families in some of the states indicate that a large proportion of farmers have poor health, that the facilities for health services are below normal requirements and that there is a pitiful inadequacy of the care provided regularly for the lower income families. A look at some of the surveys indicates that between one third and one half of the lower income groups have no medical or dental care whatsoever. Of the 16,000 cases of serious illness reported by farm families in Texas and Oklahoma, less than one half had a doctor's care. Only one out of three births was attended by a physician.³

Physical examinations of farmers in three Nebraska counties revealed that about 72 per cent of men would not have met the current standards for military service. In rural areas, death rates among mothers and infants far exceed those of urban mothers and babies. At almost every age level, death rates are greater in rural areas, and especially in towns and cities from 2,500 to 10,000 population, than in our largest urban centers.⁴ In recent examinations, farm youth 18 and 19 years old showed the highest Selective Service rejection rate for physical, mental or educational defects of any occupational group: 41 per cent compared to an average of 25 per cent for other groups.⁵

In most rural counties, public health services and hospitals are far from adequate. For years physicians have been leaving not only the rural areas for the cities, but the poorer agricultural states for more prosperous ones. Before the war, many areas had but one physician for every two or three thousand people. War has further aggravated this situation. More rural physicians have entered the armed forces than have urban ones. Most of those remaining are older men. If rural areas are to have more adequate health service to meet the needs of the future, comprehensive plans must be made for this service.

The national physician-to-population ratio which is considered the minimum necessary to protect civilian health is probably about 1 to 1,000. Individual areas

³ Klemm-Schmidt, L. S.: How Can Better Rural Health Be Developed? Rural Sociol., March 1944, p. 23.

⁴ Anderson, Elm L.: Adequate Medical Care for Rural Families, J. Home Econ. 36: 397 (Sept.) 1944.

⁵ Fact Sheet on Rural Health and Sanitation, United States Department of Agriculture, Jan. 3, 1945.

² Information supplied by the Division of Economic Information, Bureau of Agricultural Economics, U. S. Department of Agriculture.

are considered critical if they have a ratio of one physician to 1,500. In April 1942, sixteen rural states had less than one active private practitioner for 1,500 people in 1,005 rural counties which neither included a metropolitan center nor were adjacent to counties which had metropolitan centers. The total population of these counties exceeded 22,000,000. The average number of persons per active practitioner in these 1,005 counties was 2,015. In the same month an equitable distribution of the nation's available physicians could have provided one for every 937 persons.

The shortage of dentists in rural areas is even worse. One Southern state reported one dentist to every 11,000 people for the entire state. The teeth of many farmers and members of their families are in need of dental work. Among hundreds of thousands of farmers, dental care is practically unknown. And it is not only their teeth that suffer, but sometimes their entire system as a result of neglect of the teeth.

Many rural areas have inadequate or no hospital facilities. It has been estimated that over 1,200 counties of the United States are without a single satisfactory general hospital. While some of the counties have had some service from adjoining counties, many are in dire need of hospitals—at least emergency facilities.

In 1941, of America's 3,070 counties, 1,400 were without services of full time departments of public health—and practically all of them were rural counties. The situation now is even worse because of the war.⁶

If rural people are to share more fully in the benefits of modern medical science, they need immediate help in four areas: determining need for physicians and means of attracting them to rural areas after the war, getting legislation to enable communities to establish hospitals and health centers, setting up programs that emphasize preventive medicine rather than catastrophic illness and carrying out an educational program that will clarify the issues involved.

THE GENERAL WARTIME PICTURE OF THE HEALTH OF THE NATION

Despite the stress and strain of worldwide conflict, the health of the people remains good, surprisingly good in the extraordinary situation. The mortality statistics for 1943 and 1944 reveal a death rate unprecedentedly low. In the first month of 1945 the general death rate, estimated from the 10 per cent mortality sample, was 11.3 deaths per thousand of population, which is significantly lower than the rate of 13.4 for January 1944 and 6 per cent lower than the expected rate. Fortunately, the nation has been spared any serious epidemic.

But despite the low mortality figures, war has taken a definite toll of the health of the civilians. Families and homes have been disrupted. Emotional and mental distresses increased greatly. Men and women were breaking physically, emotionally and mentally in large numbers. So in addition to the great demands on war medicine some serious health problems are being encountered on the civilian front especially in the field of nervous and emotional disorders. Medical men, wherever they may be, are heroically attempting to meet the old and new challenges with new ideas, new principles and new methods of practice.

BROAD CONSIDERATIONS BEARING ON INDUSTRIAL MEDICINE

Jobs for 60,000,000 workers is the postwar employment objective. In this country and in most civilized nations, labor is struggling with fundamental social

problems having to do with the welfare of the people. The International Labor Code of 1939 reveals the depth and breadth of these efforts. Many of the questions with which labor deals present medical angles. Only through wise medical guidance can best solutions be obtained. Obviously employment itself, a living wage, a satisfactory home and proper nutrition are all essentials here as everywhere. Wages, working hours, rest periods and an annual holiday are of national concern to all. The employment of minors, their training and pay, and especially their use on night shifts needs careful supervision. The employment of women, now so general, calls for special consideration. Problems of industrial health, safety and welfare are newly laid at our door. Social insurance is struggling for recognition. New legislation is being sought. Labor statistics are being compiled. Migration is receiving consideration. Standards for judgment and action are being devised. These represent broad considerations in which medicine must take its stand.

Employment is essential to life, liberty and the pursuit of happiness and also to mental, moral and physical health. Employment will have to be found not only for those now at work in this country but for the 10,000,000 men and women who will return at the close of the war. Adjustment to peacetime employment will in most instances be just as difficult as that required on entering military service. Hence proper provision must be planned and made available in advance of the return of the veterans. With 60,000,000 people to be employed in the plants and shops and on the farms this represents the greatest postwar problem which the nation and the healing arts have to face.

THE MEDICAL PROFESSION AND EMPLOYMENT OF WAR VETERANS AND OF THE HANDICAPPED

While this nation was at war medicine and dentistry were likewise at war. No part of the entire war effort—combat, production or agriculture—was more effective than was that of the professions of medicine and dentistry. Industry faces the greatest problem of its history in the forthcoming postwar period. Labor, management, medicine and dentistry must unite in a common effort in which the rights of all must be considered. The welfare of each group must be considered in the great cooperative efforts necessary to meet the great problems. The high ideals of the medical and dental profession will meet the new situation in terms of its.

In the postwar period many changes will be effected. More and more professional men will enter into industrial endeavors. Industrial medicine will demand the maximum efforts of the medical and dental professions. Medicine stands ready in this emergency, as in all others, present and past, to do its share. This, however, should be done through cooperation and not by coercion. Only plans winning whole-hearted medical support will yield maximum results.

THE HANDICAPPED AND THEIR EMPLOYMENT

The war has centered attention on the employment of the handicapped. This will be an important problem in postwar industry. Manpower shortage already has compelled the employment of great numbers of the halt, the lame and the blind. Management has been able to find some place for all handicapped workers to make a contribution to the war effort. Management states that the major difficulties rest not with the individuals concerned but with problems of insurance and

6. Fact Sheet on Rural Health and Sanitation, pp. 2-4.

unionism. Medicine believes that there is a definite place in industry for handicapped persons, including the cardiac provided proper consideration is given to their examination, placement and routine check-up.

Absorbing the disabled veteran so that he may take his place in society is one of the major tasks of business and industry. Although the first responsibility for rehabilitation and vocational adjustment of discharged servicemen in the United States is placed on the Veterans Administration, much of the responsibility for the veteran's return to normal life falls upon industry. It is not a responsibility that will be shirked. Individual companies throughout the country are making plans not only to take back into their organization those of their own employees who have become disabled but to absorb as many as possible of the handicapped servicemen who have not previously been employed by the company. Many successful programs are already in operation.

The medical profession has much responsibility in helping disabled veterans make their adjustment. The doctors and dentists who are associated with industrial and business firms, either on a full or on a part time basis, will have an especial opportunity in this regard.

The successful placement of handicapped workers requires close coordination of efforts of the personnel and medical departments. Mr. Michael Supa, supervisor of the physically handicapped personnel of the International Business Machines Corporation, who is himself blind, writes:

Proper placement of the physically handicapped person has the same results as the proper placement of nonhandicapped individuals. If properly placed, the physically handicapped person is not a handicapped worker.

War casualties are now bringing into industry in large numbers persons with physical defects of all kinds, loss of arms and legs, of vision and of hearing. Fortunately the Medical Corps of the Army and Navy have gone to great lengths to train these victims of violence with physical and mental handicaps and condition them for future employment. The majority of such men will face their problem of peacetime employment with the same kind of courage, ingenuity and understanding that characterized their actions on the field of battle. As long as these victims are willing to work and to approach employment in a cooperative spirit, all these major problems should be susceptible of solution, including matters pertaining to insurance and to unions. Success will depend largely on the spirit of veterans, of labor and of management. But since the rights of veterans have been bought on the field of battle and have been paid for in advance, the American people, if need be, will see that these rights are recognized and met.

MEDICAL EDUCATION AND RESEARCH

Many of the medical and dental officers who have served with the Army and Navy will seek refresher or postgraduate courses before they return to civilian practice, while others will want to undertake such training after they resume civilian practice. Expansion of special training facilities through increased provision of teaching hospitals and medical centers will be required.

Tremendous progress has been made in medical research during the war. The curative powers of penicillin and sulfonamide drugs, the life saving value of blood plasma and serum albumin and typhus vaccine, and the development of new malaria control methods

are all fruits of a concentration and expansion of medical research resulting from determination to win the war. Adequate financing, coordination and teamwork have been the keys to this success. Through governmental agencies, such as the Army, Navy and the Office of Scientific Research and Development, and quasigovernmental agencies such as the National Research Council, and nongovernmental agencies such as the universities, pharmaceutical houses and other groups, the nation's resources for research have been mobilized in a vast cooperative effort.

With victory attained, we now approach the challenges of peace. Many problems await solution. Much long-term, as well as short-term, research into the cause and cures of cancer, arteriosclerosis, hypertension, dental decay and nervous and mental disorders must be undertaken in order to assure further progress against disease.

THE NEED FOR ORGANIZED RESEARCH FOR INDUSTRIAL HEALTH

The professions of medicine and dentistry and the medical and dental schools must organize research in the interest of industrial health and hygiene, for the purpose both of making new discoveries and adding new techniques and of utilizing more effectively the wide but unrelated knowledge and technic that already exists. Research as an important basic instrument in our program must not be overlooked and for the long run it is absolutely essential. It means that all workers will work more effectively and will bring about greater advances. To complete the whole program, professional training of old and new workers in the industrial field will need to be added to organized research. Let us look briefly at a practical program already proposed.

THE NEED FOR A BASIC TRAINING PROGRAM FOR INDUSTRIAL HEALTH PERSONNEL

Nor must one forget that the whole program for the improvement of industrial health will require a definite educational program. This will have to take the place of our very incomplete and fragmentary efforts at the present time in providing systematic facilities for instruction in modern health industrial methods both before and after graduation. Such instruction will have to be a part of the curriculum of the school for the undergraduate. Provision will have to be made also for advanced systematic study in bona fide graduate instruction as well as continuing postgraduate instruction for the doctor engaged in practice. In a report by committees representing the American Association of Industrial Physicians and Surgeons and the Council on Industrial Health of the American Medical Association, the need for a unified plan is expressed "which assigns overall responsibility for coordinated classroom discussion, field studies and laboratory and section work to one single teaching division, preferably preventive medicine and public health. There must always be considerable dependence on clinical teaching in the medical and surgical aspects of industrial practice, but the testimony of recent graduates clearly indicates that older methods of divided and unrelated instruction fail to provide dependable and reasonably complete information." The same committee emphasizes the need to teach the administrative aspects of industrial health organization in plants, factories, mines and stores. It outlines two additional aspects of the content of instruction to be given as (1) industrial hygiene and toxicology

and (2) industrial medicine and traumatic surgery. In the former, emphasis will be placed on prevention as a cardinal principle for reducing the incidence of disability in industry. In the second phase the object will be the "full restoration of the injured worker to his former earning capacity in the same line of work and without unnecessary delay." The whole program will promote industrial efficiency, increase earning power and establish cooperative, industrial relations. All of these will contribute to the most effective organization of the labor force and make available manpower serve more effectively the public interest and promote the common welfare.

CONCLUSION

The postwar situation is a challenge which American medicine cannot and will not ignore. As medical advisers of the greatest of industrial nations, American medicine will serve to keep American leadership and supremacy. It will be found cooperating with labor and with management and will be giving the individual workman and farmer a medical care better than elsewhere available in the whole world. It will, by its research, its ingenuity, its professional knowledge, help create the standards for employment conditions which, together with an individual care comparable to the care it gave the American soldier, will make American manpower, in quality and quantity of production, the greatest in the world.

CLINICAL AND EPIDEMIOLOGIC ASPECTS OF EPIDEMIC PLEURODYNIA

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In recent years the medical profession has become alerted to a disease, pleurodynia, which was relatively unknown twenty-five years ago. Its frequent dramatic appearance in epidemic outbreaks over widely separated areas of the world has elicited many and varied clinical descriptions. The American reports of epidemics together with historical summary of the disease have been enumerated in a recent paper by Tasker Howard¹ and his associates describing an epidemic in Brooklyn in 1942.

The great majority of the authors have stressed the extent of the epidemic, its distinctive clinical characteristics, the essentially benign character of the disease, its self-limited course free from sequelae, and its importance in diagnostic differentiation from many more serious medical and surgical conditions. In addition to the epidemic of 75 cases reported here, I have encountered many additional sporadic cases in various other communities. As knowledge and awareness of the disease picture become more widely disseminated, a more precise estimate of its true incidence in both its sporadic and its epidemic form may be realized.

Less consideration has been hitherto directed toward the morbidity aspects of the disease. The afflicted individual, although reassured as to his ultimate recovery, nevertheless finds himself relatively incapacitated and unable to perform his regular duties successfully over an indefinite period of time. Such disability when multiplied *en masse* for an entire group of a working population may exert a significant effect on industrial efficiency. One of my purposes in this paper is to focus attention on the subjective reactions of the ailing indi-

vidual. More accurate appreciation of these factors may alter our concept of the disease and reorientate our ideas of the degree of incapacity associated with it, while noting its effect on economic loss.

A clearer delineation of the disease syndrome and its economic implications would be an effective stimulant toward expanding our knowledge of the epidemiologic aspects of the disease. Only scant reference has been made in past reports of epidemics of epidemic pleurodynia to its mode of spread and communicability. Adequate information concerning these factors has been far from satisfactory. For the public health control of the disease, it is essential that more epidemiologic data be forthcoming.

In the early summer of 1944 I was confronted with an outbreak of epidemic pleurodynia on an island war housing project for shipyard workers. In view of the uniformity of environmental conditions and the economic status of the population, a study of the disease, with emphasis on its clinical behavior, morbidity and epidemiologic characteristics, seemed opportune. The circumstances were such as to preclude an accurate statistical study of the daily clinical progress of the individual patient, the number of relapses, the exact duration of the disease or the amount of absenteeism from work. Because of limited laboratory facilities, studies on the etiology or pathogenesis of the disease were not pursued. In the past, attempts at determining the etiology of the condition have completely failed. Intensive laboratory and bacteriologic studies such as those carried out by McDonald, Hewell and Cooper² have yielded negative results. However, recent work at the National Institute of Health has given promising results toward establishing a virus as the infectious agent.

During a period extending from the last week of June 1944 through the middle of November 1944, 75 cases of epidemic pleurodynia or myalgia were collected on Blakely Island, a war housing project, located on an island in the Mobile River, which lies adjacent to a large shipbuilding yard. Occupancy of the 1,200 apartments in this project was limited to employees of this concern. A tunnel for automobile traffic connects the island with the mainland. This group of shipyard workers and their families consisted of white persons, most of whom came from rural areas of Alabama and Mississippi.

EPIDEMIOLOGIC DATA

At the outset it was decided to study the manner of spread of the epidemic by locating each case as it occurred on a spot map of the island housing project. By following the chronological incidence of cases in families, and their successive occurrence in localized areas, it was hoped to secure information bearing on the degree of infectivity of the disease, its relation to environmental factors and the duration of the incubation period. Estimation of the latter has thus far been rather indefinite.

Three weeks after the appearance of the first case, a total of 19 cases had been accumulated. Of these, 6 cases (32 per cent) were confined to an area of three blocks (area I, fig. 1). Seven cases (37 per cent) were in a corresponding area (area II, fig. 1) to the left of the center block of the housing project. The remaining 3 cases were distributed to each of three sparsely populated border zones (areas III, V and VI, fig. 1). With increased incidence of the disease, the bulk of

1. Howard, Tasker, and others: Epidemic Pleurodynia in Brooklyn in the Summer of 1942, J. A. M. A. 121: 925-929 (March 20) 1943.

2. McDonald, R. R.; Hewell, B., and Cooper, M. L.: Clinical and Bacteriologic Studies in Epidemic Myalgia, or Pleurodynia, Am. J. Dis. Child. 53: 1425-1434 (June) 1937.

of 4 cases each, may be noted in two adjoining blocks of area I (fig. 1). The symbol for each case represents the date when first diagnosed. Reference to table 1 reveals the exact location of the case in addition to the chronological order of its appearance. Thus, Jn5, J5

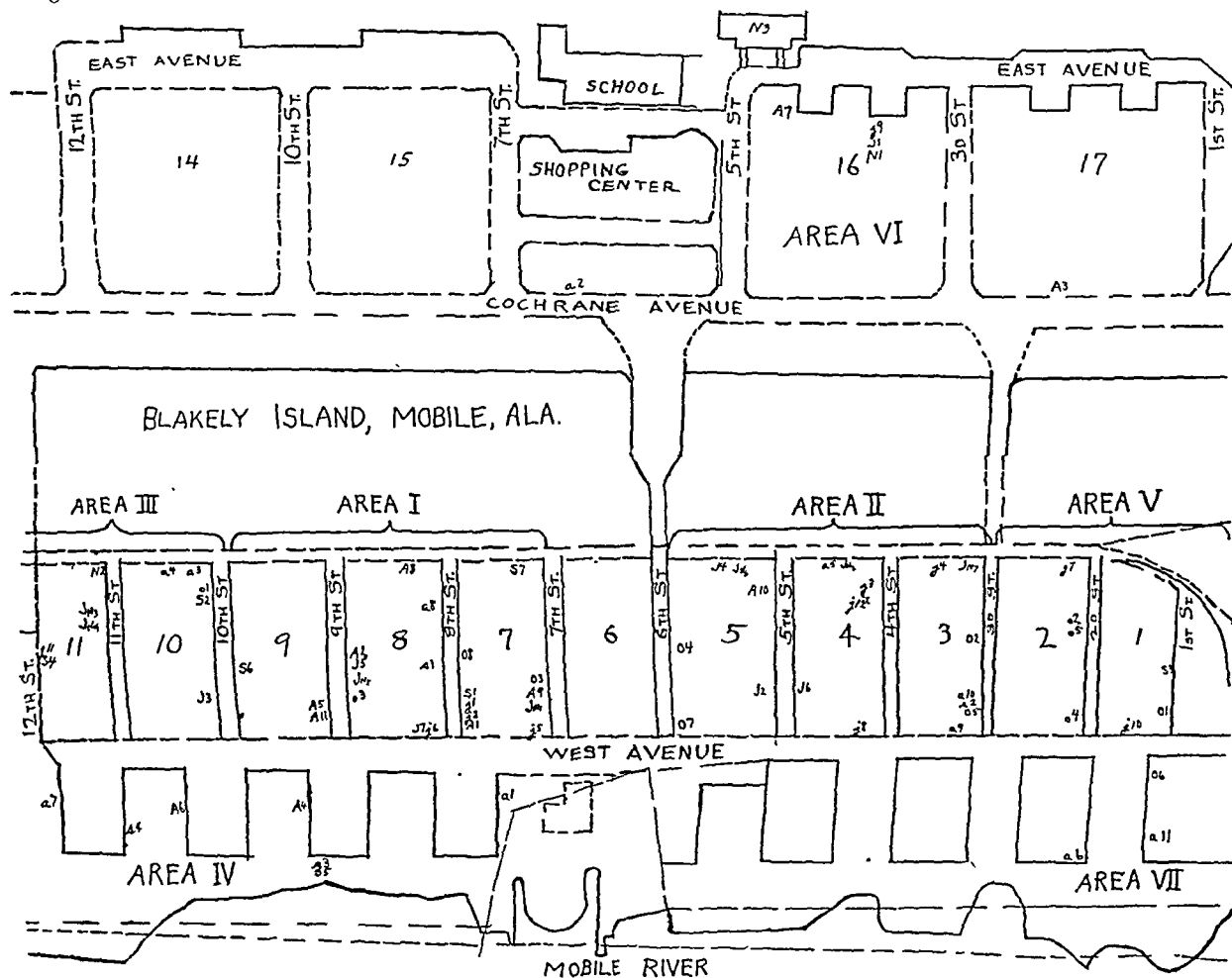


Fig. 1.—Outline spot map of Blakely Island, Mobile, Ala., showing cases of epidemic pleurodynia with respect to location and date of occurrence. Symbols and specific dates in table 1.

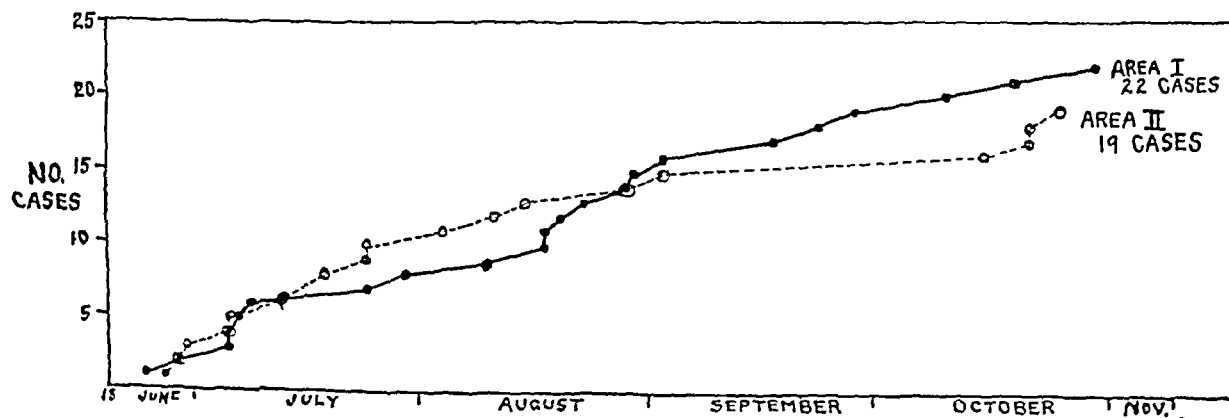


Fig. 2—Curves showing rate of increase in number of cases of epidemic pleurodynia in two designated areas of housing project.

and A2 represent 3 cases, all from the same apartment, 109 C 9th Street, occurring on June 28, July 24 and August 17. The time interval between these 3 cases from the same household is therefore twenty-six days and twenty-four days.

Another group of cases in area I, j1, j2, A1 and S1, occurred in three adjoining apartments, namely 103 A 8th, 105 A 8th and 107 A 8th at approximately one month intervals. Cases a10, s2 and O5 in area II likewise occurred in three adjoining apartments, namely

TABLE 1—*Chronological Distribution of Cases, with Location on Island Housing Project*

Date	Address			Symbol	Area
	Number	Apartment	Street		
6/21	106	B	7th	Jn1	I
6/26	104	D	Cochrane	Jn2	II
6/27	110	D	11th	Jn	III
6/28	110	C	11th	Jn1	III
6/28	109	C	9th	Jn5	I
6/28	504	D	Cochrane	Jn6	II
6/29	101	C	Cochrane	Jn7	II
7/15	105	A	8th	J1	I
7/15	107	B	8th	J2	I
7/15	120	B	11th	J	II
7/15	106	B	Cochrane	J4	II
7/16	701	C	West	J5	I
7/18	801	D	West	J6	I
7/18	201	C	Cochrane	J7	V
7/12	103	B	West	J8	II
7/12	210	A	1st	J9	VI
7/12	107	B	West	J10	V
7/14	Dorm		12th	J11	III
7/15	120	B	4th	J12	II
7/16	210	C	East	J1	VI
7/18	110	A	5th	J2	II
7/21	106	C	10th	J3	III
7/21	506	A	Cochrane	J4	II
7/24	109	C	9th	J5	I
7/24	105	A	5th	J6	II
7/29	801	A	West	J7	I
8/1	804	D	West	a1	IV
8/1	509	A	Cochrane	a2	VI
8/1	1002	A	Cochrane	a3	III
8/2	1006	A	Cochrane	a4	III
8/2	106	A	Cochrane	a5	II
8/2	208	A	West	a6	VII
8/2	1112	C	West	a7	IV
8/2	120	D	9th	a8	I
8/10	01	D	West	a9	II
8/14	108	A	d	a10	II
8/14	201	D	West	a11	VII
8/17	101	A	8th	A1	I
8/17	109	C	9th	A2	I
8/17	201	C	Cochrane	A3	VJ
8/18	912	B	West	A4	IV
8/19	101	B	9th	A5	I
8/19	1012	B	West	A6	IV
8/22	120	B	1st	A7	VJ
8/22	801	D	Cochrane	A8	I
8/28	106	B	7th	A9	I
8/28	118	A	5th	A10	II
8/29	102	C	9th	A11	I
9/2	110	D	8th	s1	I
9/2	106	A	1st	s2	II
9/12	908	D	West	s3	IV
9/15	1104	A	West	s4	IV
9/17	105	A	8th	S1	I
9/19	116	B	10th	S2	III
9/21	108	A	1st	S3	V
9/21	Dorm		12th	S4	III
9/21	908	C	West	S5	IV
9/21	109	D	10th	S6	I
9/28	201	D	Cochrane	S7	I
10/10	120	D	10th	o1	III
10/10	112	D	2d	o2	V
10/10	105	D	9th	o	I
10/11	102	A	2d	o4	V
10/12	710	B	2d	o5	V
10/10	201	D	1st	O1	V
10/17	112	C	3d	O2	II
10/19	108	B	7th	O3	I
10/21	111	C	6th	O4	II
10/21	104	D	d	O5	II
10/26	202	C	West	O6	VII
10/27	101	A	6th	O7	II
10/30	109	B	8th	O8	I
11/1	210	B	1st	N1	VI
11/1	110	C	Cochrane	N2	III
11/18	225	B	1st	N3	VI

108 A 3d, 106 A 3d and 104 D 3d, with intervals of approximately twenty-two days and forty-eight days respectively. Pairs of cases taken at random throughout the island, as A5, A11, reveal a ten day interval; o1 and S2, a twenty day interval; s3 and S5 (adjoining apartments), a nine day interval; Jn7 and j4 (adjoining apartments), a six day interval.

In each of 2 instances, a6 (208 A West Avenue) and all (204 D West Avenue), the symptoms of epidemic pleurodynia occurred in persons who had been living on the island only over a two week period. j3 and j12 represent cases in a son and his mother occurring on July 5 and July 15 respectively, an interval of ten days. In most of the cases the dates mentioned represent the first visit made instead of the date of onset of symptoms. This would therefore tend to alter the accuracy of any estimated incubation period.

Reference to figure 2 reveals two fairly abrupt rises in the case frequency curves of area I, the first occurring at the end of the first week in July and the second in the third week of August. On the other hand, the curve of area II shows a more even and gradual curve up to the beginning of September, after which no further cases occurred until the third week in October. Four cases then developed in a period of ten days. With the onset of cooler weather no further cases were observed.

It is to be noted that, for the most part, the aforementioned data are necessarily circumstantial and presumptive. Nevertheless, one may venture an approximate estimate of the incubation period as between one and three weeks.

The epidemiologic evidence of spread of the disease by intimate contact seems substantiated by the fairly characteristic distribution of cases in adjoining apart-

TABLE 2—*Cases of Epidemic Pleurodynia According to Age*

Age	Number	Percentage
10 years and under	6	8
11-20	21	28
21-30	24	32
31-40	11	15
41-50	10	14
51-60	1	1
Total	73	

ments and within the same household. Yet in many instances only 1 member of a household would develop the disease. The degree of infectivity was therefore rather variable and often not particularly high. Individual susceptibility or immunity are factors that need further investigation in relation to the infectious agent. The concentration of cases in the more congested areas of the community would tend to implicate overcrowding as a factor in the spread of the disease by contact. Most of the apartments were rather small, averaging four or five less than medium sized rooms; yet often they contained several families or several boarders. No other significant environmental factors could be ascertained in relation to the mode of spread of the epidemic or to the sudden rises in the curve of case frequency of area I. One might add that an excessive amount of rainfall with periods of continuously high humidity had been present during the spring and summer of 1944 in Mobile. Harder,³ in describing an epidemic of pleurodynia in southwestern Ohio, commented on the occurrence of warm moist weather and stated that the amount of rainfall had been more than usual. The majority of our cases occurred during the warmest months of the year as prevailing in the deep South (table 5). The highest number appeared in July and August, namely 21 and 22 cases respectively.

In conformity with previous reports, this outbreak of the disease was most prevalent among persons under 30 years of age, totaling in this category 51 cases

3 Harder, F. K. Epidemic Myalgia or Pleurodynia in Southwestern Ohio, *Am J M Sc* 1911: 678-685 (May) 1936

(68 per cent, table 2). There were only 6 children 10 years of age and under. The youngest patient was aged 7 and the oldest 69.

The sexes have usually been equally affected by this ailment. However, in this group there was a preponderance of females. As noted in table 3, there were 27 males (36 per cent) as compared to 48 females (64 per cent). The significance of this fact on age and sex distribution is limited because of the distinctive nature of the industrial population on the island.

CLINICAL MANIFESTATIONS

Only 10 of the 75 cases (table 4) lacked a history of an abrupt onset, a characteristic finding of the disease. The majority of patients would spontaneously mention the exact hour at which the symptoms first became apparent.

Prodromal symptoms associated with upper respiratory infections were noted in only a small number of cases. Thus, sore throat or a burning type of dis-

TABLE 3.—Cases of Epidemic Pleurodynia According to Sex

Sex	Number	Percentage
Male.....	27	36
Female.....	48	64

TABLE 4.—Cases of Epidemic Pleurodynia According to Type of Onset

Onset	Number	Percentage
Gradual.....	10	13
Sudden.....	65	87

TABLE 5.—Incidence of Cases During Various Months in 1944

Month	Number of Cases
June.....	7
July.....	21
August.....	22
September.....	10
October.....	12
November.....	3

comfort in the pharynx were complained of by 9 patients. This finding is in contrast to other epidemics, in which pharyngitis has been a rather prevalent symptom. In 9 cases chills were mentioned as preceding the onset of the illness. Patients frequently related a history of a preceding "run-down" condition that had existed over a variable period of time.

A febrile reaction has been one of the most constant findings associated with cases of epidemic pleurodynia. MacDonald⁴ reported an incidence of 91 per cent in 70 cases. Table 6 reveals that more than half of the patients in the present series were practically afebrile. Often a patient would complain of feeling flushed or feverish despite the presence of a normal temperature. In about one third of the cases a low grade fever up to 101 F. was present. In a smaller group of 10 cases (13 per cent) the temperature was over 101 F. and in 1 case reached as high as 105 F. Except for an occasional case with bradycardia, no significant alterations of the pulse were noted.

Because of the diverse symptomatology of the disease and the ease with which it could be confused with many

other serious medical or surgical conditions, those cases that did not present pain and tenderness in the epigastrium or in either of the subcostal regions were absolved from the diagnosis of pleurodynia. The pain was most frequently of a paroxysmal, lancinating type and radiated throughout the trunk in all directions. Burning or knifelike were terms often used to describe the pain.

TABLE 6.—Temperature and Pulse Data on First Examination

75 Cases			56 Cases		
Temperature	Number	Percentage	Pulse	Number	Percentage
97-99	40	53	50-60	3	5
99-101	25	34	60-70	13	23
Over 101	10	13	70-100	31	56
			Over 100	9	16

Others stated that it "cut their breath off" and in many instances a "smothering" sensation was complained of substernally. There was a conspicuous absence of complaints involving pain or aching of the extremities. Variations of the severity of the pain or discomfort seemed directly related to the individual's inherent pain threshold. Moderate palpation over the tender muscles in the epigastric region often elicited severe, inwardly radiating pain associated with a transitory feeling of nausea. In certain individuals objective findings of tenderness in muscles of the upper abdomen were discovered on physical examination, in the absence of subjective complaints.

Table 7 shows the site and frequency with which various areas were involved. It is noteworthy that the trapezius muscles were affected in 29 cases (39 per cent). Scant reference has been made in the literature to such involvement. However, Ronald⁵ has noted that, in addition to the abdominal muscles, there is particular involvement of the muscles around the shoulder girdle and neck in some cases of epidemic pleurodynia. On the basis of anatomic and physiologic facts relating to the innervation of the diaphragm by the phrenic and intercostal nerves, he concludes that the clinical manifestations of the disease are due to a pathologic disturbance of the diaphragm or its overlying pleura. Backache was complained of in 22 of our cases (29 per cent). This was referred most frequently to either of the costovertebral areas. A number of patients disclosed the fact that their abdominal or thoracic pain

TABLE 7.—Location of Pain and Tenderness Symptoms

Site	Number of Cases	Percentage
Epigastric.....	75	100
Subcostal.....	75	100
Trapezius.....	29	39
Costovertebral.....	22	29
Lower abdomen.....	40	53
Right lower quadrant.....	31	41

became aggravated with movements of the body, deep breathing or coughing.

The presence in 31 cases, or 41 per cent, of acute pain and tenderness in the lower right abdominal region overlying the appendix is an indication of the importance of considering pleurodynia in the differential diagnosis of acute appendicitis. Awareness of the essential clinical features of pleurodynia would lead to more accurate diagnoses of such acute surgical emergencies. One should never relax one's vigilance regarding the possi-

4. MacDonald, R. R.: Epidemic Myalgia or Pleurodynia. *Pennsylvania M. J.* 41:519-520 (July) 1938.

5. Ronald, James: *Bornholm Disease*. *J. Roy. Nav. M. Serv.* 28: 144-149 (April) 1942.

bility of acute appendicitis when confronted with any type of acute abdominal pain. Nevertheless, major surgery is not indicated in the treatment of a benign condition such as pleurodynia. Other acute intra-abdominal conditions that need to be differentiated from pleurodynia are acute cholecystitis, perforated peptic ulcer, gastroenteritis and pelvic inflammations. Among other conditions might be mentioned coronary disease, pleurisy, influenza, pneumonia, rheumatism and diseases of the genitourinary system.

The subjective systemic reactions displayed by patients suffering from pleurodynia are in many respects as important in the clinical picture of the disease as are the aforementioned objective findings. In many instances they may even overshadow the latter. In general the patients appeared languid or lethargic, exhibiting varying degrees of prostration and malaise. The peculiar, distinctive character of the pain or discomfort seemed so totally unfamiliar to them that they appeared baffled and often apprehensive as to the pos-

sensations were described usually in the upper extremities. Certain individuals reported fainting attacks. Some were aware of an aching, burning discomfort in the eyes. Another complaint was that of difficulty in focusing their eyes on near objects.

Laboratory findings were necessarily incomplete. At best, such data offer no particular aid in diagnosis or prognosis. A noticeable feature in table 9 is the relatively low levels of hemoglobin and red blood cell counts. The white cell blood cell count was 8,000 or below in 13 out of a total of 16 such counts. The differential counts appeared to be within normal limits. Three fourths of the sedimentation rates performed proved to be elevated. Such preponderance of high sedimentation rates is in agreement with a similar proportion of high sedimentation rates culled from table 1 of the paper by Howard and his associates.¹ Further investigation of this finding in relation to epidemic pleurodynia would seem to be indicated.

Although the duration and course of the disease are unpredictable, one can remain quite confident of its benign termination. The average duration of the present group of cases appeared to be one to two weeks and sometimes longer. A few persons reported residual areas of tenderness in the lower thoracic and upper abdominal regions as long as six to eight weeks after the acute symptoms had subsided. Prognostically one can unreservedly reassure the patient as to his eventual recovery without complications. Only one of my patients, a child of 8 years, developed otitis media during the course of the disease.

TABLE 8—Incidence of Various Subjective Symptoms

Symptom	Number of Cases	Percentage
Frontal headache	43	57
Dizziness	30	40
Nausea	46	61
Vomiting	30	40
Paresthesias	21	28
"Smothering," substernal	10	13 3

TABLE 9.—Data of Blood Determinations

Sex	Age	Hemo- globin, Percentage	R. B. C.	W. B. C.*	Sedimenta- tion Rate, Mm/Hr.
♂	29	76	4,000,000	8,750	..
♂	10	..	..	5,250	5
♂	37	..	..	12,000	..
♂	8	58	3,000,000	5,250	20
♂	69	68	3,800,000	4,250	20
♂	21	60	1,700,000	7,250	28
♂	30	58	3,100,000	5,250	15
♂	47	..	..	5,750	23
♂	45	..	..	3,750	18 5
♂	20	..	..	6,000	26
♂	25	60	3,200,000	6,500	..
♂	8	63	..	8,000	10
♂	77	..	..	9,000	25
♂	17	..	..	5,750	19
♂	53	64	3,500,000	7,000	8

* All the differential counts were within normal limits.

sibility of heart trouble or other serious ailments. Weakness and fatigability aggravated their feeling of wretchedness. Attempts at remaining ambulatory or continuing at their work usually provoked increasing nervousness, irritability and exhaustion until the patient finally succumbed to bed rest.

One of the foremost complaints was that of frontal headache, noted in 43 cases, or 57 per cent (table 8). It was of a constant, dull character in contrast to the sharp, intermittent pains referred to the region of the occiput. Dizziness, usually associated with the headache, was present in 30 cases (40 per cent). In most reports digestive disturbances have been noted in one third or less of the cases. However, in our series nausea appeared more prominently, involving 61 per cent of the cases, and vomiting was noted in 40 per cent. The incidence of diarrhea or constipation was indeterminate, since self medication during the initial stage of the illness seemed an almost universal practice.

An interesting feature of this outbreak seldom mentioned in previous reports was the presence of paresthesias, especially in females, which occurred in 21 cases (28 per cent). Numbness, tingling and pricking

COMMENT

In the absence of a known etiologic agent, only symptomatic therapy can be applied for relief from the noxious effects of the disease. Efforts were made to provide effective therapeutic agents so as to enable the patients to resume their important wartime duties within the shortest time, thereby preventing relatively long periods of absenteeism. No such hopes were realized, except for temporary relief secured by the local application of heat and occasional strapping of the lower thoracic region. In spite of the multiplicity of therapeutic agents exhibited, including the sulfonamides, vitamin B₁ and neostigmine, no convincing beneficial results materialized. Certain patients did seem to respond to one or the other of these agents, but the results did not appear to be consistent beyond a certain proportion of cases. Definitive therapy for this disease will depend on the isolation of a specific etiologic agent. In the Annual Report⁶ of the U. S. Public Health Service there is a statement relating to the fact that the blood, spinal fluid and nasal washings of human cases of epidemic pleurodynia have yielded an agent pathogenic for monkeys. Further development of such virus studies are in progress (personal communication).

Many reports have stressed the high incidence of involvement of children as well as young adults. Only 6 children under 10 years of age (8 per cent) were noted in our series. In them, the salient presenting features were the abdominal complaints. The ever present shadow of possible acute appendicitis was a matter of great concern to the parents. An accurate evaluation of the clinical picture as a whole, and the presence of acutely painful and tender muscles elsewhere over the abdomen as well as around the thorax, the neck, and high in the epigastrium, may aid in the differential diagnosis.

6 Annual Report of the United States Public Health Service for the Fiscal Year 1944, Federal Security Agency, Washington, D. C.

It is my conviction that sporadic or epidemic cases of pleurodynia are more prevalent than would be inferred from a perusal of the literature in this field during the past two decades. Certain obscure conditions relating to virus infections and simulating acute surgical conditions of the abdomen have been reported. Butsch and Harberson⁷ recently reported a series of 50 cases of an acute virus infection with nerve root involvement simulating appendicitis. Of this group 13 were operated on and normal appendixes were removed. Further study revealed a definite syndrome characterized by an abrupt onset of abdominal pain, nausea and vomiting. Aggravation of the pain by coughing or deep inspiration was noted. The authors' diagrams reveal the areas where the abdominal pain and tenderness were found; namely, on the right side at the level of the umbilicus, next in the right subcostal border and right lower quadrant, and lastly in the epigastrium and left subcostal regions. These cases occurred during the summer and fall months. Laboratory findings were not significant. A punctate erythematous edema of the palate was noted in most of their patients. It is conceivable that closely related viral agents might be responsible for the striking similarity in the clinical manifestations between this syndrome and that of epidemic pleurodynia.

SUMMARY

A survey of the clinical and epidemiologic aspects of an outbreak of 75 cases of epidemic pleurodynia reveals that its role as a communicable, incapacitating disease, contributing to economic loss through absenteeism and simulating more serious medical and surgical conditions, should not be underestimated.

360 West California Avenue, Memphis 5.

7. Butsch, W. L., and Harberson, J. C.: Virus Infection with Nerve Root Involvement Simulating Appendicitis, *J. A. M. A.* **123**: 405-407 (Oct. 16) 1943.

The Rise of American Gynecology.—From a practical point of view, gynecology of the nineteenth century was essentially American. The superb contributions of Ephraim McDowell (1771-1830), James Marion Sims (1813-1883), the Atlee brothers and Thomas Addis Emmet (1828-1919) solved several of the major therapeutic problems of this specialty. To these we may add the names of other surgeons who ventured to invade the pelvis during the preantiseptic days: Nathan Smith (1762-1829) of Yale, John Lambert of Richmond, François Prevost (1764-1842) of Louisiana, William Gibson of Baltimore, Alban G. Smith of Kentucky, Gilman Kimball (1804-1892) of Massachusetts, David L. Rogers of New York, J. C. Warren of Boston, J. Bellinger (1804-1860), A. Dunlap (1815-1894), Nathan Bozeman (1825-1905), E. R. Peaslee (1814-1878) and D. Hayes Agnew (1818-1892). Daring indeed were John King and his fellow townsmen T. Gaillard Thomas and A. J. C. Skene (1837-1900) for their deliberate performance of a laparo-elytrotomy. George Osgood reported a laparotomy for extrauterine pregnancy in 1802, and in the following year David Ramsay (1749-1815) of Charleston reported a similar operation. In 1816 John King of Edisto Island, South Carolina, performed a remarkable operation for abdominal pregnancy, saving both mother and child by cutting through the walls of the vagina and applying forceps, with abdominal pressure exerted on the fetus. He afterward expanded his account of the operation with his observations into a volume of one hundred and seventy-six pages and published it at Norwich, England, in 1818. Joseph Pancoast (1805-1882) of New Jersey was the first to perform a successful plastic operation for extrophy of the bladder. This operation was repeated with success on the female bladder by Daniel Ayres of Brooklyn (1822-1892) in November 1858.—Ricci, James V.: *One Hundred Years of Gynaecology*, Philadelphia, Blakiston Company, 1945.

IS SURGERY INDICATED IN ALL CASES OF NODULAR GOITER, TOXIC AND NONTOXIC?

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AND

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From an analysis of the data presented in this paper we believe the following two theses to be true:

1. All nontoxic nodular goiters—single and multiple—should be removed surgically because of the high incidence of unsuspected cancer, a rate which exceeds that of cancer of the breast in the clinically benign appearing group.

2. Toxic nodular goiters should be removed surgically and should not be treated with thiouracil.

Two recent papers¹ have emphasized the high incidence of malignant degeneration in nodular goiters. Ward¹ presented an incidence of 4.8 per cent in 3,539 nodular goiters of both sexes. In males the incidence was 11 per cent and in females 4.0 per cent. Cole and his associates¹ showed the incidence of carcinoma in 523 nodular goiters (including toxic, nontoxic, benign and malignant) to be 7.2 per cent. However, a breakdown of their cases revealed the following extraordinary facts: In 193 cases of nontoxic nodular goiter there was an incidence of 17.1 per cent of carcinomas, while in the group of nontoxic solitary nodules 24 per cent were the seat of carcinoma.

We reviewed the cases of nodular goiter in which we operated during the past five years and after eliminating all the cases in which the diagnosis of carcinoma was made preoperatively and confirmed pathologically we were left with 184 cases of clinically benign nodular goiters (some were toxic and some nontoxic) which showed an incidence of 7.6 per cent of cancer on pathologic examination. This figure is in close agreement with that of Cole and his associates.

We believe that an incidence of 7.6 per cent of cancer in cases of apparently benign nodular goiters is a compelling reason for operative removal of all such nodules unless a strong contraindication exists. To reinforce this thesis we have made the following study on breast tumors. It is generally agreed among internists and surgeons that biopsies should always be taken of a "lump" in the breast, followed by a radical mastectomy if proved malignant. This policy holds, regardless of how innocent clinically the "lump" may seem.

At the New York Hospital the following data were accumulated: Two hundred consecutive pathologic specimens of breast lesions were studied, and it was observed that 140 (70 per cent) of them were benign, and 60 (30 per cent) were malignant. The charts of 30 consecutive malignant cases then were reviewed and it was evident from the clinical data that only 5 out of 30 cases were considered benign. The remaining 25 cases clinically exhibited the characteristics of cancer. Therefore out of every 75 lesions clinically benign only 5 are proved to be malignant on biopsy by the pathologist—an incidence of 6.7 per cent. Yet no one would criticize the policy of routine biopsy of a "lump" or mass in the breast, as reference to the accompanying

1. Ward, R.: Malignant Goiter, *Surgery* **16**: 783-803 (Nov.) 1944. Cole, W. H.; Slaughter, D. P., and Rosciter, L. J.: Potential Dangers of Nontoxic Nodular Goiter, *J. A. M. A.* **127**: 883-888 (April 7) 1945.

table will show. Hence we feel that the same attitude and policy is justified when one is dealing with a nodular goiter whether solitary or multiple, nontoxic or toxic. The operation on the thyroid gland performed by a surgeon experienced in thyroid surgery is not dangerous, entails only three to four days' hospitalization and in the nontoxic group should be without mortality. The technic of thyroidectomy and our experience with the nontoxic nodular goiters will be published elsewhere.

The second thesis, i. e. thiouracil should not be used in cases of toxic nodular goiter, is based on the practical grounds outlined in the first thesis and on the theoretical grounds to be discussed.

Broders and Parkhill² stated recently that "microscopically the thyroid gland in cases of Graves' disease treated with thiouracil shows extreme hyperplasia with heightened epithelium, marked papillary infolding, and mitosis in the epithelial cells." And again the same authors state that "the thiouracil goiter is more of a cellular hyperplasia with mitosis very much in evidence, and so therefore more comparable to a carcinoma of the thyroid." Bielschowsky³ has reported the unusual finding that the carcinogenic agent 2-acetylaminofluorene which produces a wide variety of cancers in the rat fails to produce any such change in the thyroid gland unless thiourea is administered simultaneously. In that

Incidence of Clinically Unsuspected Cancer in Breast and Thyroid Nodules

	Number of Cases	Number of Cancers	Per Cent
Breast.....	75	5	6.7
Thyroid.....	181	11	7.6

case adenomatous or anaplastic invasive epithelial tumors of the thyroid gland may develop.

In a recent editorial in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION⁴ attention was drawn to these experimental findings of Bielschowsky and the possible significance of the use of thiouracil in man for the treatment of hyperthyroidism. Ward¹ has stated that carcinoma occurred in only 1 instance in his series of 1,900 toxic diffuse goiters; hence the potential danger of thiouracil in this group of hyperthyroid patients is slight. On the other hand, because of the facts presented in thesis 1, i. e. 7.6 per cent of clinically benign nodular goiters are malignant, and because of the observations of Broders and Parkhill and of Bielschowsky, we feel that thiouracil is contraindicated in the treatment of toxic nodular goiter and that operative intervention should be employed.

CONCLUSIONS

1. All nontoxic nodular goiters should be removed surgically because of the relatively high incidence of unsuspected cancer.

2. Thiouracil is contraindicated in the treatment of toxic nodular goiter and operative intervention is the treatment of choice.

130 East 79th Street.

2. Broders, A. C., and Parkhill, E. M.: Diffuse and Adenomatous Goiter and Goiter Induced by Various Agents, *Surgery* 16: 633-646 (Nov.) 1944.

3. Bielschowsky, F.: Distant Tumors Produced by 2-Aminofluorene and 2-Acetylaminofluorene, *Brit. J. Exper. Path.* 25: 1-4 (Feb.) 1944.

4. Thiourea and Experimental Carcinogenesis in the Thyroid, editorial, *J. A. M. A.* 127: 278-279 (Feb. 3) 1945.

IMMEDIATE CARE OF THE WOUNDED THORAX

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The experience which has been gained in the early preoperative care of severe thoracic battle casualties can, in large measure, be applied to the primary management of thoracic injuries in civil life as well. As far as this is true the following presentation may help to place such therapy on a firmly established basis in civil practice. The discussion is based on work in the Mediterranean and European theaters over a period of two and one-half years by us and our colleagues of an auxiliary surgical group.

First aid treatment of the thoracic casualty is initiated on the battlefield by company aid men. These soldiers are taught that sucking wounds should be closed with a dressing large enough to stop the sucking noise, that a "stove-in" chest should be bandaged snugly, that the wounded man should be urged to cough if he has a rattle in his windpipe and that he should be transported in a sitting position if he has difficulty in breathing when lying down. Further treatment is given at the battalion aid station under the supervision of a medical officer. Here, dressings are adjusted when necessary and petrolatum gauze is packed in a sucking wound; morphine may be administered and plasma given. The patient receives a high priority for evacuation to a clearing station and thence to a forward mobile hospital. In civil life this type of therapy may be compared to the first aid treatment which can be given for thoracic injuries and accidental wounds occurring in the factory, on the street and elsewhere. In industrial organizations particularly the well trained first aid man should be able to initiate nearly all the therapeutic measures here enumerated.

When the thoracic casualty arrives in a forward hospital, preliminary appraisal is made of all wounds and of the patient's general status. Since many are in too poor condition to be x-rayed at once, the correct interpretation of physical signs becomes all important. Measures of resuscitation are immediately instituted which will either prepare the patient for surgery or make him more safely transportable. As soon as possible, roentgenograms are taken and the whole problem is reevaluated. The scheme of management described here is likewise applicable to civil practice. The measures are not first aid in nature and are to be instituted in a hospital under professional guidance.

GENERAL DIAGNOSTIC CONSIDERATIONS

Physical examination of the patient includes accurate localization of the external thoracic wounds and a projection of the probable course of the missile. Roentgenograms should consist of upright frontal and lateral views of the chest whenever possible. A flat plate of the abdomen is essential, owing to the high incidence of thoracoabdominal wounds and the frequency of gastric dilatation. Oblique projections and fluoroscopy are unnecessary in the preliminary survey. Later they may be required in localizing accurately certain foreign

bodies lying in the region of the diaphragm.¹ The course of the projectile is best determined by considering the external wound, identifying fractured ribs and visualizing the metallic fragment when present. As a general rule missiles travel in a fairly straight line. Deflections from the bony cage must be taken into consideration, and foreign bodies lying free in the pleural cavity may be misleading. Other presumably bizarre courses often may be explained by reconstructing the patient's position at the time of wounding.²

By plotting the course of the missile a general idea can be gained as to intrathoracic or thoracoabdominal damage. This is one of the first steps in planning what type of surgery may be eventually necessary. The possibilities of past or future hemorrhage may be more accurately appraised. The suspicion of extensive pulmonary or cardiac contusion will counsel a delay in surgery. Pulmonary contusion may be manifested either by scattered areas of hemorrhage bilaterally such as seen in "blast" injuries or by massive bleeding involving an entire lobe or more. Cardiac injuries are not always easy to diagnose and form a special problem both in resuscitation and in surgery. A general "washed-out" condition, sustained rapid pulse, transient irregularities of rhythm and the persisting need for oxygen have been indicative signs of cardiac injury. In contrast to civil practice, tamponade has been of rare occurrence. Even the development of tamponade has not been an absolute indication for surgical intervention, as aspiration alone has sufficed on several occasions. Continuing cardiac hemorrhage is justification for an early operation. Myocardial contusion, however, constitutes a serious risk for any type of operation. The patient tolerates surgery poorly during the first few hours and undoubtedly should be handled like a patient with an acute coronary occlusion. Unless absolutely necessary, all surgery should be postponed for at least twenty-four to forty-eight hours.

Careful examination of the abdomen always should be performed on thoracic casualties. A large number of patients with uncomplicated thoracic injuries develop acute gastric dilatation; decompression must be carried out immediately. Abdominal pain, tenderness and a silent abdomen on auscultation also may be complications of a purely thoracic wound. Although frequently difficult, early decision is required as to whether these signs are due solely to intercostal nerve damage or to intra-abdominal injury. In general, the abdominal spasm which accompanies a thoracic wound is likely to be unilateral and becomes less evident on inspiration. At times the results of anesthetic block of the intercostal nerves may be of aid. Following nerve block there are often cessation of pain and skin tenderness, but in the presence of peritoneal pathologic change some degree of spasm, rigidity and tenderness to deep pressure usually remain. In most instances, however, accurate determination of the track of the missile is the deciding factor.

RESUSCITATIVE MEASURES

The clinical estimation of shock is based on a systolic blood pressure below 100, an elevated pulse, pallor (or cyanosis), sweating, a lowered skin temperature and rapid shallow respirations. In most thoracic casualties cardiorespiratory imbalance and pain are the chief elements in perpetuating shock; hemorrhage frequently

is a secondary consideration. With certain exceptions (intra-abdominal pathologic conditions, severely damaged extremities, continuing hemorrhage) there is no necessity for rushing a thoracic casualty to the operating room; often from six to twelve hours are utilized in resuscitation. In specific instances (extensive pulmonary contusion [blast] or myocardial contusion) at least twenty-four to forty-eight hours should elapse before even minor surgery is performed.

Actual resuscitation of the soldier with extensive thoracic wounds may be discussed under three headings: (I) correction of impaired cardiorespiratory physiology and relief of pain; (II) restoration of fluid balance; (III) early prevention of infection. Many of the procedures necessarily may be carried out almost simultaneously.

I. CORRECTION OF CARDIORESPIRATORY IMBALANCE

The following measures are concerned with bringing the thoracic wall, lungs, heart and mediastinum as close to a normal physiologic state as possible. Correction of cardiorespiratory imbalance frequently will bring the patient out of shock without the necessity for fluid replacement therapy.

Impairment of Thoracic Wall.—Often the first step in gaining physiologic restitution is accomplished during the first examination of the thorax. A poorly dressed sucking wound must be effectively occluded to prevent exchange of air. At the same time it may be convenient to evacuate a portion of the blood and air that have collected in the pleural cavity, particularly if the sucking wound is valvular in type. This is done by placing the patient in such a position that the wound is roughly dependent. During forced expiration and cough the wound is held open, and during inspiration the edges of the wound are approximated. Thus several hundred cubic centimeters of fluid and air may be rapidly removed. At the preliminary examination localized "flail" chest may be controlled by inducing quiet respirations through the use of regional nerve block. When flail chest and paradoxical motion are extensive, mechanical means of stabilization are necessary such as the use of small sand bags, positioning the patient with the affected side down or the use of firm adhesive strapping. Elevation of the ribs with external fixation by pericostal sutures or towel clips has not yet been necessary.

Thoracic Pain.—The relief of thoracic pain has a vital bearing on hastening recovery from shock. Anesthetic block of the intercostal nerves has proved the best means of relieving thoracic pain and has been used extensively.³ Routinely a regional type of block is employed in preference to local infiltration at the injured site. The extent and contamination of wounds have dictated the former choice. When wounds are posterior and mesial, or when regional block has not given complete relief, paravertebral injections of the same nerves are done. By this technic it is probable that both the sympathetic chain and the intercostal nerves are infiltrated. In performing regional block the area of pain is outlined and 5 cc. of a 1 per cent solution of procaine hydrochloride is injected into each nerve at the angles of the ribs. Two nerves above and two below the painful area are usually included in the injection. It is difficult to describe adequately the immediate surcease from pain which many wounded receive from this therapy

1. Buthank, Benjamin; Burford, T. H.; Samson, P. C., and Mesrow, Sidney: Experience in the Localization of Thoracic Cavity Foreign Bodies. *J. Thoracic Surg.* to be published.
2. Nichols, L. M.: Preoperative Diagnosis of the Recently Wounded Abdomen, to be published.

3. Samson, P. C., and Fitzpatrick, L. J.: Intercostal Nerve Block: Its Role in the Management of Thoracic Casualties. *Med.* 62:254 (May) 1945.

alone. A patient who has been dyspneic and grunting with pain will become quiet and may often fall asleep within a few minutes. Adhesive strapping has not been satisfactory in relieving pain due to thoracic wounds. It is now reserved solely for the stabilization of flail chest which exhibits paradoxical motion.

Morphine for the control of pain must be administered with great caution in the resuscitation ward. The observations of Beecher¹ have been verified by all who have treated fresh battle casualties. It now appears that much of the morphine given in the combat area may remain largely unabsorbed because of the slowed peripheral circulation due to shock and cold. During resuscitation quantities of unabsorbed morphine may be picked up by an improving circulation. This has resulted in acute morphine intoxication on a number of occasions. Similar occurrences may be expected in civil practice. In thoracic casualties particularly, overmorphinization has a deleterious effect in depressing respiration and dulling the cough reflex. When morphine is indicated for shock patients it should be given intravenously in doses not to exceed $\frac{1}{8}$ to $\frac{1}{4}$ grain (8 to 11 mg.).

Anoxia.—In patients with extensive thoracic wounds severe degrees of anoxia are made manifest by extreme restlessness, apprehension, sustained rapid pulse and dyspnea with or without cyanosis. Thoracic pain is often a contributory factor. Anoxia usually has been due to a combination of causes; reductions in vital capacity, anemia and cardiac injury. Again, morphine must be used with caution if at all, since respiratory depression will increase the anoxia. Pain is relieved by nerve blocks; oxygen should be given at once by nasal catheter or mask at not less than 7 liters per minute. This will act as supportive therapy until the lungs can be partially re-aerated and blood administered. There must be no delay in commencing oxygen, as a manic stage of restlessness has been observed to be the immediate precursor of death in several instances. As a general supportive measure oxygen should be used early and freely on any patient who is restless or dyspneic or whose pulse remains elevated. Cyanosis is a late manifestation of anoxia, and oxygen should be administered before it develops.

Hemothorax.—This is the most frequent complication of intrathoracic injury. A large hemothorax or hemo-pneumothorax may reduce the vital capacity to dangerous levels. If the pleural cavity appears to contain more than 500 cc. of fluid or if the patient is dyspneic and there is cardiac and mediastinal shift to the opposite side, thoracentesis should be done. As much blood is removed as can easily be obtained up to 1,000 cc., or up to the point that the patient complains of tightness in his chest. If the blood is presumably uncontaminated and less than twenty-four hours old it may be used for an autotransfusion. Changes in roentgenographic and physical signs following thoracentesis will give an indication as to further bleeding. It is difficult to generalize on how much bleeding constitutes life endangering intrathoracic hemorrhage. Bleeding of such severity from the pulmonary parenchyma is exceedingly rare. We have found the following criteria to be the most reliable guides to serious continued hemorrhage: (1) a blood pressure which fails to rise with apparent adequate blood transfusion as high as 2,000 cc. or, having risen to relatively normal levels, falls again; (2) reacumu-

lation of 1,500 to 2,000 cc. of blood in the pleural cavity within twenty-four hours of the initial aspiration of a similar large amount; (3) persisting severe anemia in spite of blood replacement, as determined by serial hematocrit readings.

Excessive Bronchopulmonary Fluids.—"Traumatic Wet Lung."²—Inadequate tracheobronchial evacuation of excessive secretions and blood has been observed in varying degrees of severity from a few hours up to seven days after injury. Wet lung is a frequent complication of thoracic trauma and has occurred following fractured ribs, parietal and intrathoracic wounds and pulmonary blast injuries. During the immediate post-traumatic period the complication may be serious and, when unrecognized, has been directly responsible for death. Its presence always increases the surgical risk. The most common symptom is a frequent "wet," painful cough. Oral wheezes are prominent and rhonchi are heard constantly over one or both sides of the chest. The cough is non-effective in that only small amounts of sputum are raised and the bubbling character of the respirations persist. Blood and tenacious mucus form the bulk of the obstructing fluid. Purulent exudate signifies a preexisting bronchitis. Acute massive collapse of the lung has been seen only twice. On both occasions it was due obviously to obstruction of a main bronchus.

The aim of treatment is to improve bronchopulmonary drainage. Any surgery ordinarily should be postponed until an adequate airway can be maintained. Morphine in large amounts and sedative cough mixtures are expressly contraindicated. Thoracic pain is relieved by nerve block³ and voluntary cough is urged. Oxygen is given if the patient's pulse remains elevated or if he becomes cyanotic. Should the patient be unable to cough effectively because of physical exhaustion, or should excretions continue to flood the bronchi overwhelmingly, mechanical suction is resorted to without delay. Either tracheobronchial catheter aspiration⁴ or bronchoscopy is employed. Suction may be necessary at hourly intervals. A catheter may even be left indwelling in the trachea and oxygen administered through it between aspirations. Catheter suction is a valuable procedure in that the materials are readily available, the technic is simple and no topical anesthesia is required. Bronchoscopy is more efficient and may be performed twice daily without ill effect. If the secretions are frothy and fine rales are heard, intravenous atropine in doses of $\frac{1}{400}$ grain (0.65 Gm.) may be beneficial. In such cases oxygen given under positive pressure also has been of value.⁵

Pressure Pneumothorax.—While infrequent, this complication may be serious and even fatal if unrecognized. The diagnosis is based on the findings of dyspnea with or without cyanosis, a hyperresonant hemithorax, absent breath sounds and a shift of the heart and

1. Beecher, H. K.: Delayed Morphine Poisoning in Battle Casualties, J. A. M. A. 124:1119 (April 22) 1941.
2. Burford, T. H., and Burbank, Benjamin: Observation on Certain Physiologic Fundamentals of Thoracic Trauma, J. Thoracic Surg., to be published. Samson, P. C., and Brewer, L. A., 3d: Principles of Improving Inadequate Tracheobronchial Drainage Following Trauma to the Chest, Ibid., to be published. Brewer, Benjamin, Samson, P. C., and Schiff, L. J.: The Treatment of Traumatic Wet Lung, J. Thoracic Surg., to be published.
3. Haight, C., and Ransom, H. K.: Observation on Certain Physiologic Fundamentals of Postoperative Atelectasis, Surg. 11:1243 (Aug.) 1941. Bailey, J. W.: Principles of Thoracic Surgery, 1942. Samson, P. C., Brewer, L. A., 3d, and Burbank, Benjamin: Tracheobronchial Catheter Aspiration: Indications and Technique, Bull. U. S. Army Med. Dept., to be published.
4. Brewer, L. A., III; Burbank, Benjamin; Samson, P. C., and Schiff, L. J.: Experiences with "Wet Lung" in War Casualties, to be published.

mediastinum to the opposite side. The most frequent acute traumatic cause of pressure pneumothorax is pulmonary laceration in which the bronchial opening acts as a check valve. During inspiration gradually increasing amounts of air are trapped in the pleural cavity. Pressure pneumothorax may result from the ingress of air through the thoracic wall in patients with sucking wounds. As already described, this may be relieved easily when the wound is dressed. A third but rare type of pressure pneumothorax develops as the result of small perforating wounds of the subglottic larynx or cervical trachea. Air dissects along the fascial planes of the mediastinum and may break into one or both pleural cavities. In these cases an early, low tracheotomy to short circuit the air stream is mandatory.

In the purely emergency treatment of any pressure pneumothorax a large-bore needle should be inserted in an upper anterior intercostal space and attached to a water-trap bottle. A short transfusion cannula with attached flange is excellent for this purpose. The needle should not be left indwelling for more than a few hours. If air continues to bubble through the water-trap system or, if examination shows that the lung is not expanding, a No. 16 to 18 catheter is to be substituted for the needle. The tip of the catheter is inserted just within the pleural cavity and likewise attached to a water seal. The lung will expand only if the caliber of the drain is larger than the caliber of the bronchial opening; frequently the catheter will be successful in controlling the pneumothorax when a needle has failed. No patient with pressure pneumothorax should be transported with a needle in his chest or with any type of attached water-trap drainage. When evacuation is necessary a flutter valve (long penrose tubing or condom with small distal slit) is attached to the catheter.

Mediastinal Emphysema.—This condition occasionally has been diagnosed roentgenographically. The most frequent clinical sign is the presence of a precordial crunch or click which is synchronous with the heart beat. In our experience it has not been of clinical significance and no case of increased mediastinal pressure has developed. Mediastinal emphysema has followed wounds of the hilar bronchi, trachea and subglottic larynx. Control of the pressure pneumothorax which almost always complicates these injuries has stabilized the patients sufficiently to permit operation. Suprasternal incisions into the deep fascial planes might rarely be necessary as an emergency measure. The absence of old pleural disease and the lack of pleural thickening and adhesions in nearly all individuals in the Army probably explains the ease with which air in the mediastinum dissects into the pleural cavity.

II. FLUID REPLACEMENT

For the most part intravenous therapy is limited to blood; plasma may be started at once while blood is being cross matched. Serial red cell counts and hematocrit readings have been of value in determining the degree either of anemia or of hemoconcentration, and the response to replacement therapy. Intravenous crystalloids are employed but rarely and only when there is evidence of dehydration. Besides laboratory findings, the amount of blood given is based on the patient's improvement following the first 500 cc. and on the minimum known loss (thoracentesis). Unless there has been obvious exsanguination it is better to slow the rate of administration after rapidly giving the first 500 cc. Occasionally a continuous transfusion of 1,500 to

2,000 cc. is necessary, but this should be given over a period of hours. Large transfusions rapidly administered are not well tolerated by an injured lung or heart. This is particularly true of severe pulmonary blast; in some instances the flooding of these patients with blood has precipitated acute pulmonary edema and thus become an undoubted factor in the fatal outcome.

III. THE EARLY PREVENTION AND CONTROL OF INFECTION

All battle wounds are contaminated wounds. This is equally true of compounded injuries which are incurred in civilian life. In either situation the prevention of infection is highly desirable, particularly when the wound or injury communicates with the pleural cavity. It has been routine practice to "dust" battle wounds with sulfanilamide in the combat area, and many soldiers have taken 3 or 4 grams of a sulfonamide orally before arriving at a forward hospital. Unfortunately it is impossible to say that sulfonamide therapy has materially reduced the percentage of early wound infections. Although the incidence of generalized sepsis is low, soldiers whose initial surgery has been unavoidably delayed still present an appreciable number of infected wounds. At present, all but those with minor wounds receive penicillin on admission to a forward hospital. It is given intramuscularly every three hours. If the patient is septic on arrival the initial dose is given intravenously. If there is evidence of early intrapleural infection penicillin is instilled into the pleural cavity at least once during the period of resuscitation. While believed an important adjunct, chemotherapy has not been accepted as a substitute for adequate initial excision of devitalized tissue by surgeons in the Mediterranean theater.⁹

Careful handling of the wound in a forward hospital is a factor in the prevention of infection. While it is frequently necessary to examine thoracic wounds preoperatively, several changes of dressings by different individuals must be condemned. A single inspection under sterile precautions nearly always suffices. When reapplied the dressing should not be so large that it will be disturbed by thoracentesis or subsequent examinations of the thorax.

SUMMARY

1. A rational plan has been adopted for the early preoperative care of the severe thoracic casualty in forward hospitals.

2. This program is applicable whether one is dealing with war wounds or with the thoracic injuries and wounds which may be encountered in civil and industrial practice.

3. Adequate resuscitation is a necessary preparation either for surgery or for transportation. Unless hemorrhage or the urgency of other wounds dictates early surgical intervention, the majority of serious thoracic casualties will be greatly benefited if they are not rushed to the operating table.

4. Patients with extensive contusions of lungs or heart are poor risks, and surgery in these patients should be delayed whenever possible.

5. Methods of resuscitation are (1) restoration of normal thoracic physiologic conditions including the control of pain and the treatment of hemothorax, "wet

⁹ Churchill, E. D.: The Surgical Management of the Wounded in the Mediterranean Theater at the Time of the Fall of Rome, *Ann. Surg.* 120: 268 (Sept.) 1944.

lung," anoxia and pressure pneumothorax, (2) fluid replacement and (3) early prevention of infection.

6. Oxygen should be freely used, preferably before cyanosis develops, for any patient who is restless or dyspneic or whose pulse remains elevated.

7. Caution should be observed in the administration of morphine in the resuscitation ward.

8. The "therapeutic triad" most commonly employed for improving thoracic dysfunction consists of nerve block for the control of pain, thoracentesis and water-trap catheter drainage for intrapleural pathologic changes and mechanical suction (catheter aspiration, bronchoscopy) for the removal of excessive bronchial fluids.

CONCLUSIONS

The development of an integrated system of "thoracic" resuscitation in forward hospitals has paid excellent dividends in lives saved and morbidity reduced. We would be remiss if much of the information thus gained was not applied to the solution of similar problems in civilian practice. Early contact with many wounded soldiers has served to emphasize the fact that clinical shock is perpetuated by disturbances of cardiorespiratory equilibrium. Continued experience has strengthened the concept that patients with severe thoracic wounds should be resuscitated thoroughly, that time itself plays an important role and that, with few exceptions, nothing is gained and often much is lost by hurriedly submitting the thoracic casualty to the surgeon's knife.

PARTIAL OR INCOMPLETE DELIRIUM

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MEDICAL CORPS, ARMY OF THE UNITED STATES

My first object in this paper is to describe a particular variety of delirium, one which differs from other varieties in the extent of the patient's disorientation: Whereas in other varieties the patient is disoriented in the three spheres of time, place and person, disorientation in the variety to be described is restricted to, or is most pronounced in, the sphere of time. Reasons will be given for regarding this variety as a rudimentary form of delirium, a "partial" or incomplete delirium, while that with disorientation in all three spheres is a severe or complete delirium. My second object is to show that in partial delirium the restriction of disorientation to the sphere of time is not a capricious and incomprehensible phenomenon but is understandable in the light of Hughlings Jackson's theories of nervous function and is indeed an especially clear illustration of the merit of those theories.

Three cases will serve as examples of partial delirium. It is needless to give complete clinical histories; the relevant details alone will be given:

CASE 1.—A man aged 56, while taking bromide for a mild depression, became delirious and was admitted to a mental hospital on April 10, 1934. The history, the findings and the outcome were typical of a bromide delirium.

At no time was he observed to be disoriented for place or person, and after his recovery he could not remember having ever been disoriented in these spheres. By contrast, there was conspicuous disorientation for time. Thus on April 12, 1934 he gave the date as March 12, 1934 and said he had

been in the hospital ten days (really only three). On April 20, when asked to give the year, he replied doubtfully "35, I guess"; when asked the month, he replied "May, ain't it?—the middle"; when asked the time of day, he said "It must be getting toward evening," though it was only 9 a. m. He recovered on or about April 22.

In case 1 disorientation was restricted to time. In cases 2 and 3 it was not restricted to, but was most pronounced in, that sphere.

CASE 2.—A woman aged 20, developing a bromide delirium while under treatment for a mild depression, entered the hospital on Sept. 1, 1937. She recovered on or about September 10.

At no time did she show disorientation for place. Disorientation for person was shown at home but never in the hospital. Disorientation for time, however, was present to an extraordinary degree, as in the following examples:

September 4: She thought it was May or June. She could not give the time of day; she guessed it was 3 or 4 p. m. and thought she had already had her lunch, though actually it was only 11 a. m. Questions pertaining to time confused her to an extreme. Though it was only her fourth day in the hospital, she estimated the length of her stay as "two or three months." When asked her age, she replied in a puzzled tone "About 4,000 years— (correcting herself) —26 or 28—30 years. . . . I don't know, I'd be about 4,000 years old, I guess."

September 8: She thought she had been in the hospital "about a month." She gave the date as Sept. 15, 1938.

September 9: She gave the day, the month and the approximate day of the month correctly but still thought it was 1938.

September 10: She was now well oriented. When asked the year she smiled and said "It's not '38 yet," remembering and deprecating her previous mistakes in this respect. With amusement she recalled thinking she was 4,000 years old and said "I imagined I was the oldest woman in the world." Before her admission she had been reading about Cleopatra, and she thought this must have been in the back of her mind.

CASE 3.—A woman aged 65 with cerebral arteriosclerosis was admitted to the hospital on Feb. 6, 1935 in a bromide delirium which cleared up a little over a month after admission.

Orientation for place was never disturbed. Orientation for person was disturbed only in the first few days in the hospital and then only occasionally. But orientation for time was strikingly poor. On February 9 she said it was the middle of January 1934. Though it was only her fourth day in the hospital she said she had been there "three or four weeks." On February 14 she gave the month correctly but gave the year as 1900. On February 20 she said it was February 24; in trying to give the year she said "It's nineteen hundred and ——" and could not finish. On March 4, when she seemed much brighter, she gave the month correctly but said it was "about the 30th"; when asked the year she replied uncertainly "Is it 1935?" On and after March 15 she was clear and kept track of time without trouble.

Study of these and similar cases leads one to the conclusion that partial delirium is of a piece with complete delirium, from which it differs only in degree. In partial just as in complete delirium the patient is lacking in alertness and is restless, apprehensive, deluded and hallucinated. The toxemias and other causes of complete delirium are found also in partial delirium.

Since partial delirium appears to be a rudimentary delirium, the question arises: Does the former ever occur as a preliminary stage in the evolution of a complete delirium? Evidence on this point is hard to get, since the physician confronted with a case of partial delirium must try to cure it rather than allow it to advance. But if there is scant opportunity to study

the waxing of delirium, there is ample opportunity to study its waning. Such study shows that the completely delirious patient, in recovering, sometimes passes through a clearly definable period of partial delirium; this is shown by cases 4 and 5:

CASE 4.—A man aged 76, a heavy drinker, was admitted to the hospital on Nov. 13, 1935 in a severe delirium brought on by cardiac decompensation and by morphine taken to allay certain nervous symptoms which had followed the sudden withdrawal of alcohol. On admission he was disoriented in all spheres. In recovering he became oriented for place and person over two weeks before he became oriented for time. On November 16 he became permanently oriented for place and person. Yet on November 19 he gave the year as "36." Next day he could not give the month or year. On November 27 he gave them as January 1996. On November 29, when asked the year, he replied "It's '29—oh wait, no, that's wrong—well (helpless and embarrassed), I give it up." On December 4, for the first time, he was fully clear and remained so ever after.

CASE 5.—A man aged 85 was admitted to the hospital on Feb. 1, 1936 in a complete delirium, the immediate causes of which could never be established with certainty. The case is none the less instructive because of the order in which the symptoms disappeared in the course of his recovery. On February 4, his fourth day in the hospital, he became oriented for place and person and remained so ever after. By contrast, orientation for time was not restored until at least twenty-two days later. Thus on February 4 he said it was the end of February 1919. On February 17 he gave the year as 1937. On February 26 he gave the date as March 2, 1836. He was not questioned again as to time until March 18 when he gave the date as March 16, 1936, which is within normal limits. Thereafter he remained clear.

Cases 4 and 5 show that in recovering from a complete delirium some patients become oriented for place and person long before they become clear as to time. This of course does not happen in every case, for in many cases orientation is restored in all three spheres simultaneously. It is significant that patients 4 and 5 were very old, 76 and 85 respectively. This may explain why their recovery was so gradual. One of the signs of old age is a reduction in the speed with which the brain rallies from the effects of a poison. Hence in a group of elderly people recovering from delirium some cases may offer a "slow motion picture" of the process of recovery.

The following conclusions have been reached: There are two degrees of delirium—complete (with disorientation for time, place and person) and partial (with disorientation restricted to, or most pronounced in, the sphere of time). Partial delirium appears to represent an intermediate stage in the evolution of complete delirium; when it occurs, it may be taken for granted that the patient will in the course of time become completely delirious (provided, of course, the causes of his delirium have not been checked).

PATHOGENESIS OF PARTIAL DELIRIUM

Why, in partial delirium, should the sphere of time bear the brunt of the disorientation? Light is thrown on this question by Hughlings Jackson's theory of the relative vulnerability of the more complex nervous functions. Jackson showed that, in disease of the nervous system, functions are vulnerable in proportion to their complexity: of the functions represented in a diseased area, the most complex are the most easily disturbed.

The recognition of time is a more complex function than that of place and person. The manner of determining the complexity of a function need not be discussed fully here; reference is made to an earlier paper.¹

One criterion, however, may be mentioned: Lateness of appearance is one measure of the complexity of a nervous function. As the brain matures, higher and higher pathways are laid down, and, correspondingly, more and more complex functions and abilities make their appearance. As every parent knows, children learn to recognize places and persons long before they learn to keep track of time. This is in keeping with the relative difficulty of these tasks. For one thing, persons and places are concrete—they can be seen and touched—while time is abstract. For another, persons and places seldom change, if ever, while time on the other hand is never constant; a particular person is always "Mother," a particular building is always "Jimmie's house," but today is not always Monday. To comprehend an abstract ever changing thing like time presupposes a higher degree of cerebral growth than to recognize concrete and relatively immutable things like places and persons.

It is therefore possible to understand why, in partial delirium, it is the sphere of time that bears the brunt of the disorientation. Orientation for time, the most difficult and complex of the three varieties of orientation, is for that reason the most easily disturbed. The last to be acquired, it is the first to be lost and the last to be regained.

SUMMARY

There are two degrees of delirium, complete and partial, the difference being in the extent of the patient's disorientation. In complete delirium there is disorientation in the three spheres of time, place and person; in partial delirium disorientation is restricted to, or is most pronounced in, the sphere of time. Partial delirium appears to represent an intermediate stage in the evolution of complete delirium; when it occurs, it may be taken for granted that the patient will in the course of time become completely delirious, provided the causes of his delirium have not been checked.

The recognition of time is a more complex function than that of place and person. Therefore the relative ease with which orientation for time is disturbed is in keeping with the teachings of Hughlings Jackson, viz. that in uniform dissolution of the nervous system functions are disturbed in proportion to their complexity, the most complex being disturbed first and most.

ABSTRACT OF DISCUSSION

DR. JOHN C. WHITEHORN, Baltimore: Major Levin has called attention to the special difficulty of keeping oriented in time—a difficulty which is demonstrated in his clinical case records by the occurrence of temporal disorientation in mildly delirious patients. He pushes his generalization to an unconfirmed absolute in stating that "it may be taken for granted that the patient (temporally disoriented) will in the course of time become completely delirious, provided the causes of his delirium have not been checked." While disorientations as to time, place and person, when demonstrated, are clear and simple clinical indications of delirium, one encounters not infrequently mildly delirious patients whose delirious condition is manifested, not in clearly describable disorientation, but in misinterpretations of complex situations and inaccurate identifications, apparently determined in part by emotional attitude. Is it the author's intention to brush aside such clinical complexities in favor of a sharply simplified neurologic schematization? If so, then he is proposing essentially a simplified redefinition of delirium. The material presented is suggestive but does not appear to me adequate to establish the utility or validity of such a redefinition.

1. Levin, Max: Degrees of Automatic Action: Some Psychiatric Applications of Hughlings Jackson's Concept of "Reduction to a More Automatic Condition," *J. Neurol. & Psychopath.* 17: 153-175, 1936.

DR. WINDRILL MUNCH, Baltimore: Dr. Levin has called attention to a clinical phenomenon often enough encountered; namely, the increased frequency with which time disorientation occurs relative to place and person disorientation. His explanation that orientation for time is more complex and more recently acquired developmentally than are the two other varieties of orientation would seem to fit in with the facts of child development. That this presupposes a higher hierarchy of functions in the Hughlings Jackson sense does not follow. The child orients himself for person and place perhaps because these items are more loaded with symbolic significance for his welfare, in the terms that he recognizes that function to be. Actually "time" to the infant is an item in the essential bodily rhythms of waking—sleep, quiescence and peristalsis, and so on, thus having a function as an integral part of the vegetative processes. Probably because of this it comes to have symbolic value as an element in orientation only late in development and then to a large extent by the impression from external sources of the need and desirability of order. In these senses, then, place and person orientation may be the more firmly grounded because it appealed to and fitted in earlier and more strongly with the infants' psychobiologic needs. Direct recognition of this fact may be further seen in the care given to all sorts of hospital patients—as well as delirious ones—namely, we attempt to further the sense of security of the patient by providing him with a relatively constant environment. We do not change rooms and nurses frequently if it can be avoided. It is less important to have a clock and a calendar in the patient's room. All this argument may offer only a teleological explanation of what Hughlings Jackson postulated in neurologic terms. What may be said for those patients who show disorientation for self (with parts of the self) and/or others, for place, but in whom time appreciation is relatively unimpaired? According to the best information to date, such disturbances follow on localized lesions and are related to the classic agnosias and apraxias. This gets into a most complicated field, far from being satisfactorily explored. As far as I know, time appreciation has never been so linked with the agnosias and apraxias. Perhaps Hughlings Jackson would say this offers only further proof of his contention that the earlier the functional development, the more basically is it laid down in structure. The concept of delirium basically rests on demonstrable clouding of consciousness with difficulty in grasp. Disorientation then is only one of several features. Accordingly, the title of the paper might better have been "Delirium with Partial and Selective Disorientation"

Clinical Notes, Suggestions and New Instruments

RECURRENT HEADACHE RESULTANT FROM MALARIA

COMMANDER ABRAHAM KAPLAN (MC), U.S.N.R.

Headache is a common symptom, due to many causes. This report focuses attention on a type of headache which will present itself with increasing frequency as more of our personnel who served in the Pacific combat areas are demobilized.

REPORT OF CASE

History.—C. B. R., a Marine corporal aged 36, was admitted to sick bay because of recurrent headaches. As a youngster he was knocked out while boxing and fainted once a few days later. When he was 17 years old he enlisted in the U. S. Marine Corps and two years later was given a BCD (bad conduct discharge) for falling asleep at his post while on guard duty. In April 1942 he reenlisted in the U. S. Marine Corps fifteen months after the second enlistment he was transferred from a ship to a nearby hospital ashore because of pain of the right arm of two months' duration. At the hospital it was learned that when he was 12 years old he was struck with a rifle over the right upper arm and since then a "lump" remained

at this site. The "lump" gave him no trouble until two months previously, when he first discovered pain and discomfort on motion. Examination showed a firm, moderately tender tumor about 10 cm. in diameter at the upper end of the right humerus. The tumor seemed attached to the bone but in no way interfered with motion. X-ray films of this region showed a bony growth about 8 cm. in length distal to the articular surface of the head of the humerus. It had the appearance of a benign osteochondroma. After one week in the hospital the symptoms subsided and he was discharged to duty.

Present Illness.—In December 1943 he was admitted to the ship's sick bay in a delirious condition. It was known that he had consumed large quantities of alcohol. He was given 3 grains (0.2 Gm.) of amytal and transferred to a nearby hospital ashore. On the following morning he was fully oriented and freely admitted drinking alcohol to excess but denied being addicted to liquor. For three weeks he had been troubled with occipital headaches which were so severe that he was unable to sleep and to get some relief he took to drink.

Physical and neurologic examinations were completely negative. The spinal fluid studies showed an initial pressure of 175 mm. There was no evidence of block and no increase in cells, sugar, chlorides or protein. The blood and spinal fluid Kahn tests were negative. Other laboratory studies, including x-ray of the skull, were negative. X-ray films of the mandible, however, showed suspicious rarefied areas in the region of the second and third molars. These teeth were extracted, but the extractions did not result in any improvement in the headaches. Repeated eye, ear and sinus examinations failed to reveal any pathologic condition that could account for the severe occipito-vertex headaches. Routine blood studies as well as studies of blood calcium, blood phosphorus and sedimentation rate were negative. The basal metabolic rate was minus 15. Dehydration did not influence the severity or the frequency of the headaches. Check x-ray studies of the right humerus showed no evidence of any malignant change. After two months of hospital study, observation and treatment, during which time there was no subjective improvement, the patient requested that he be returned to duty. He was therefore discharged.

He returned to his station and after five days' trial of duty he was found to be of little value to his command. During this interval the headaches continued unabated; he became dejected and morose and stayed awake almost all night. He was therefore returned to the hospital for further investigation and disposition.

Examination again failed to show any abnormal physical or neurologic signs. The psychiatrist made the following note: "The patient is not as alert as he was several months ago. He seems to have deteriorated in his emotional fields and shows psychomotor retardation but no true depression. The case is a complicated one, presenting schizoid features but not manifest dementia precox. He is unfit for duty. The condition may be an incipient psychosis, but there is insufficient evidence at hand at this time to make such a diagnosis. I suggest the diagnosis of psychoneurosis, war neurosis, and recommend transfer to a hospital on the mainland for disposition."

While waiting for transfer it was noted that the patient rarely smiled, took little interest in his surroundings and spent most of his time in his bunk. Two months later he arrived at a hospital on the mainland.

He still complained of headaches, but they did not seem so severe. Repeated physical and neurologic examinations as well as laboratory studies were negative. The report of his mental status was as follows: "The patient has definite psychomotor retardation; he is listless, introverted and emotionally unstable. He has an earnest desire to remain in the service but has demonstrated a lack of energy and determination to fulfil this desire when it was granted on a previous occasion. The patient appears dejected and unhappy, but no depression is manifested. It is questionable whether this man can adjust himself even to limited duty, but, if observation warrants, a try at limited duty is recommended."

The patient was granted one month leave. He returned anxious to go back to full duty and was therefore granted another try.

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For nine months during his stay on the mainland he managed to carry on his duties in spite of recurrent headaches. He was then returned to the Pacific area, where the headaches continued for eight months and during the month before admission they became increasingly severe. For six months he lost weight steadily. Ten days before admission he started to have chills and fever recurring every second day.

A malarial smear was positive for *Plasmodium vivax*. The patient was given a thorough course of quinine and atabrine, with complete disappearance of the chills and fever and for the first time in years complete disappearance of headache. The diagnosis was chronic malaria.

COMMENT

The experience here described is not altogether unusual and has been reported in detail to illustrate the false leads that may be encountered in a similar case. Although detailed blood studies were made repeatedly, a smear for malaria was unfortunately overlooked. Malaria in the Pacific area is a common disease and will become much more common in the United States as more of our fighting men return from the zones where they were exposed to the *Anopheles maculipennis* mosquito. Malaria is also a "great imitator," and it will have to be included with greater frequency in the differential diagnosis of many diseases.

The finding of the malarial parasite in the circulating blood of a patient does not necessarily rule out other causes of disease. A negative blood smear or even several negative blood smears for malaria in a patient who has had or was exposed to malaria does not rule out the existence of the malarial parasite. During the past year we have had at least a dozen patients presenting only the symptoms of recurrent headaches in whose blood we repeatedly failed to find the plasmodium in carefully prepared blood smears. In these patients the administration of quinine sulfate 15 grains (1 Gm.) or epinephrine 2 minims (0.12 cc.) subcutaneously invariably resulted in the appearance of the malarial parasite in the blood stream within two to four hours after the medication was given. A blood smear taken during this interval clinched the diagnosis.

Council on Foods and Nutrition

SPECIAL ARTICLE

The present lack of agreement concerning the value of vitamin administration has indicated the need for an authoritative discussion on the use and abuse of vitamins. At the request of the Council Dr. Norman Jolliffe, a competent authority in this field, has prepared this report describing the proper use of vitamin preparations and commenting on practices which tend to bring them into disrepute.

GEORGE K. ANDERSON, M.D., Secretary.

THE PREVENTIVE AND THERAPEUTIC USE OF VITAMINS

NORMAN JOLLIFFE, M.D.
NEW YORK

Commercial exploitation of recent advances in the science of nutrition has led to some misinformation and confusion of the public concerning the proper use of vitamins. The author of a magazine article¹ has noted the bewilderment of laymen by dozens of mutually contradictory statements offered as proof that this or that vitamin preparation is better than all others. When a person buys a vitamin product as a panacea, it makes little difference whether he does so because of unbounded claims over the radio, in newspaper or magazine advertisements, syndicated health columns or magazine articles or by a druggist, a doctor or a friend;

the expected miracle often fails to materialize. The resulting disappointment, multiplied many thousand times, may lead to a loss of public confidence and the eventual rejection of the good in scientific nutrition as well as the bad in its exploitation. Already there are indications that interest and faith in nutrition have begun to wane. Thus many editors, always sensitive to the public whim, are now jumping on the debunking band wagon by attacking indiscriminately both the good and the bad in the nutrition program.

Many people, with profit to themselves, turn to their physicians for advice on nutritional problems. Too often, however, the patient is further confused by such impatient counsel as "This nutrition stuff is the bunk"; "Vitamins are a racket"; "You eat a good diet, don't you?—Eat three square meals a day, including plenty of milk, meat, vegetables and fruit"; "Oh, take a vitamin capsule every day—any one, they are all the same." This type of injudicious advice may be more damaging to good nutrition than misinformation over the radio, since more people have faith in their physician than in a radio commercial. Sound information about the role of vitamins in nutrition thoughtfully presented can be the physician's valuable ally in maintaining his patients' health.

TABLE 1.—Supplementary Vitamin Mixtures

Vitamin A.....	4,000-5,000	international units
Vitamin D.....	400-800	international units
Thiamine hydrochloride.....	1-3	mg.
Riboflavin.....	2-3	mg.
Niacin.....	10-20	mg.
Ascorbic acid.....	30-100	mg.

Vitamin preparations may be divided into two large groups: the supplementary and the therapeutic. The supplementary preparations are those which, in the recommended daily doses, provide amounts of specific nutrients below therapeutic levels but sufficient as dietary supplements to insure an adequate intake of the specified nutrients. As a rule the formulas of the supplementary preparations supply in one dose or in divided doses the amounts of vitamins suggested in table 1. Whether a formula supplies the minima or the maxima of these levels, the indicated usage remains the same, that is, supplementary to the diet. The therapeutic vitamin preparations are those that provide levels in which the daily doses are sufficiently large to be of value in the treatment of deficiency diseases. These levels are usually three to five but may be ten or more times the minimum daily requirements. Supplementary as well as therapeutic preparations may consist of a single vitamin or combinations such as vitamins A and D, the B vitamins, the water soluble vitamins or a multiple vitamin formula of both water and fat soluble vitamins.

INDICATIONS FOR PRESCRIBING SUPPLEMENTARY LEVELS OF VITAMINS

The supplementary levels of vitamins are of use in helping to prevent diseases due to deficiency of the nutrients contained in the supplement. As listed in table 2, indications for such use occur whenever the diet is unsatisfactory from any of a variety of causes or when there is an increased requirement for vitamins. The supplementary formulas are definitely not appropriate when the patient has already developed a deficiency disease, as much higher levels are usually required for effective therapy.

1. Cunningham, R. M., Jr.: The Great Vitamin Scare, New Republic 112:287 (Feb. 26) 1945.

The physician will have little difficulty in recognizing the necessity for supplementing restricted or special diets and in infant feeding. Many, however, do not possess the time, inclination or information necessary to calculate a diet in terms of grams, milligrams or units of protein, minerals and vitamins. For most ordinary purposes this calculation is not necessary if a list of food groups, as shown in table 3, is used to check whether or not the patient eats at least the indicated minimum from each of the groups. A diet lacking in one or more categories, unless specially devised by an expert dietitian, is almost certain not to contain the National Research Council's recommended allowances of one or more of the essential nutrients. On the other hand, even the inclusion of a serving from each of the seven food groups does not definitely assure that the diet will be adequate. The check list is intended only as the simplest kind of guide for planning a satisfactory diet, and it should not be regarded as infallible. Not

ing in other essentials than vitamins alone, for those people who do not or cannot regularly consume a satisfactory diet a proper vitamin supplement is indicated. While this is not as good as a completely satisfactory diet, it is the next best thing.³

INDICATIONS FOR PRESCRIBING THERAPEUTIC LEVELS OF VITAMINS

The therapeutic levels of vitamins are of use in the treatment of vitamin deficiency diseases and as drugs.⁴ Successful treatment of nutritional deficiencies involves many factors other than giving vitamins: It involves careful diagnosis, the treatment and whenever possible elimination of conditioning factors, symptomatic treatment and finally the administration of nutritional therapy in sufficient amounts and over a sufficient period of time to evoke maximum reversal of the nutritional lesion.

The diagnosis of deficiency disease is frequently missed because it is not looked for. Nutritional deficiencies should be suspected in the following groups of persons:

1. Those whose diets indicate possible deficiencies.
2. Those who have conditioning factors known to increase the requirement, destruction or excretion of vitamins or to interfere with their digestion, absorption or utilization.
3. Those complaining of certain symptoms which, while not diagnostic, are often associated with deficiency disease.

The mere fact that a person falls into one or more of these groups does not in itself justify the diagnosis of a nutritional deficiency disease. That is made only in the presence of anatomic, chemical or physiologic alterations characteristic of deficiency disease which have been evaluated in the light of the history and of clinical and laboratory findings.

Adequate nutritive therapy does not consist in giving only the nutrients in which a deficiency is clinically manifest. It is now known that most deficiency states involve multiple factors, and deficiencies clinically evident are usually associated with additional tissue deficiencies of nutrients not yet clinically manifest. Adequate therapy of a deficiency disease, therefore, requires not only sufficient administration of the specific nutrient long enough to obtain maximum reversal of the manifest lesion but also, in addition, the restoration of tissue normal in all the essential nutrients. This can best be accomplished by a judicious combination of diet, a source of the whole vitamin B complex, the essential^{4a} vitamins (vitamin A, D, B₁, B₂, C and niacin amide) and specific therapy. A good diet means a full, nutritious, protein rich diet including natural unrefined foods administered within the tolerance of the patient. The good diet is essential, for it contains, along with known nutrients, unknown factors which cannot yet be encapsulated or dispensed in drops, ampules or tablets. In addition, the prescription of an adequate diet is a means of educating the patient of its value in the hope that he will continue it when other therapy is discontinued.

3. Some authorities apparently feel that a vitamin supplement may conflict with obtaining the best possible dietary. This is not necessarily or even usually true. It should be noted that the increase in vitamin sales between 1939 and 1944 coincided with, and did not prevent, a decided improvement in the per capita American diet. It may be that vitamin supplements call to the attention of their users the importance of a satisfactory diet.

4. The use of vitamins as drugs will not be dealt with in the present article.

4a. By essential vitamins is meant those recognized by the Food and Drug Administration as dietary essentials in human nutrition.

TABLE 2.—*Indications for the Use of Supplementary Vitamin Formulas*

1. To supplement:
 - (a) An unsatisfactory diet in the part of the general population that will not or cannot eat a satisfactory diet, or for those whose diets do not appear to be satisfactory.
 - (b) Restricted diets, as in obesity, diabetes, gallbladder disease, peptic ulcer and food allergy or during illness, infections or some surgical conditions and in convalescence.
 - (c) Special diets for food faddists.
 - (d) Infant feeding.
2. For persons known to have an increased vitamin requirement, as in hyperthyroidism, pregnancy, lactation, fevers and delirium or during periods of unusual physical exertion.

TABLE 3.—*Check List for a Satisfactory Diet*

Include at least:

- (1) 4 eggs weekly.
- (2) 1 serving daily of citrus fruit, tomato or their juices, or fresh uncooked salad greens.
- (3) 1 quart of milk daily for children, with an extra source of vitamin D.
1 pint of milk daily or its equivalent in cheese, for adults
- (4) 1 serving daily of lean meat, fish, poultry or seafood.
- (5) 1 serving daily of a cooked leafy green or yellow vegetable.
- (6) 1 serving daily of another vegetable or fruit.
- (7) 1 portion daily of enriched or whole grain bread or cereal.

all combinations from the seven groups will supply all the recommended nutrients. Moreover, even when the choice of combinations is originally satisfactory the diet may be rendered unsatisfactory by the destruction or loss of nutrients in cooking and serving, or by the additions of unusual amounts of vitamin deficient or poor foods such as refined cereals, sugar, many types of candy, cake and alcoholic or sweetened carbonated beverages. Practicality dictates that the physician prescribe supplementary vitamins whenever a patient is not regularly consuming a satisfactory diet. Some patients may sincerely try to eat a satisfactory diet but fail because of business, working or home conditions, or for other causes beyond their control. Others will not eat a satisfactory diet because of habits, fads or fancies, lack of necessary information² or sheer obstinacy. Even though an unsatisfactory diet may be lack-

2. The Food and Drug Administration expressed it as follows (Statement of Policy of the Federal Security Agency Under the Federal Food, Drug and Cosmetic Act, Fed. Register, July 3, 1940): "...nor are most consumers sufficiently educated on nutritional questions to enable them to make an intelligent choice of combinations of unenriched foods on the basis of nutritional values."

The entire vitamin B complex is given, preferably in the form of brewers' yeast, brewers' yeast extracts or crude extracts of whole liver, liver concentrates or desiccated liver, wheat germ or rice-bran extracts. These are not given primarily because of their content of thiamine, niacin and riboflavin but rather as a source of other B complex nutrients not yet synthesized, thus supplementing these factors as found in the full diet. Many conscientious physicians have been lulled into the belief that a dose of several milligrams of a yeast or liver fraction fortified with synthetic vitamins, in a capsule or a pleasantly flavored syrup or elixir, constitutes adequate B complex therapy. Liver and yeast products should be administered in grams and ounces rather than in grains and milligrams.

A preparation containing large amounts of the fat and water soluble essential⁴¹ vitamins is also given, as almost every manifest deficiency is associated with a multiple tissue deficiency of these vitamins. A practical formula is one containing vitamin A 25,000 units, vitamin D 1,000 units, thiamine 5 mg., riboflavin 5 mg., niacin amide 150 mg. and ascorbic acid 150 mg. The administration of this formula twice daily for a week or ten days is effectual in helping to restore normal tissue levels of these essential vitamins. After this period, administration once a day is usually sufficient.

To this basic therapy of diet, vitamin B complex and essential vitamins are added the specific chemicals indicated by the manifest nutritional diseases. Thus, if there are lesions of vitamin A deficiency, 50,000 to 150,000 international units of vitamin A is given. Similarly, for their specific lesions, 10 to 20 mg. or even 100 mg. of thiamine, 5 to 15 mg. of riboflavin, 100 to 1,000 mg. of niacin amide and 100 to 1,000 mg. of ascorbic acid are prescribed. In acute deficiency disease this treatment may be required only for days or weeks; for chronic deficiency disease treatment may be required for much longer periods.

SOME ABUSES IN THE COMMERCIAL EXPLOITATION OF VITAMINS

The confusion and bewilderment of the public and a possible incipient loss of faith in scientific nutrition are understandable when some of the promotional claims made for certain vitamin and food preparations are examined. The most prevalent abuses fall into three groups, namely therapeutic claims for supplementary levels of vitamins, failure to tell all and advertising puffery beyond a reasonable limit.

To make therapeutic claims for supplementary levels of vitamins—whether contained in enriched or natural or concentrated foods, in tablets, drops or capsules—has been held by the Federal Trade Commission⁵ as misleading. This interpretation seems to be well founded. It is granted that doses of vitamins within supplementary levels have been shown by qualified observers⁶ to have therapeutic value. It is important, however, to bear in mind the conditions prevailing in all these studies; the favorable responses were obtained in experimental subjects who were previously

well fed but had been subjected to an acute dietary deficiency of known factors for a relatively short time. Under these conditions supplementary levels have therapeutic value. In the aggregate there are probably many individuals in this country who from time to time have acute mild dietary deficiencies that will respond, within a reasonable period, to supplementary levels of vitamins. These persons, like people with a coryza, seldom consult a physician, as a few days of rest, with resulting elimination of some possible conditioning factors, a return to adequate diet or the taking of a vitamin supplement, usually results in a cure. It is, as a rule, only when symptoms persist that a physician is consulted. Just how large this group is, no one knows. Among those who consult physicians the commonest vitamin deficiencies are the more chronic ones,⁷ both mild and severe, in which supplementary levels of vitamins do not, within a reasonable period of time, cause a reversal of the nutritional lesions.

A review of the literature on vitamin therapy, especially that published since 1938, shows that almost without exception nutrition experts, to correct symptoms and signs due to vitamin deficiencies, advise and prescribe thiamine, niacin, riboflavin, vitamin A and ascorbic acid in daily doses larger than the supplementary levels. Since even physicians who are nutrition experts seldom, if ever, treat a deficiency disease with vitamin doses in supplementary levels, it does not seem to be in the public interest for therapeutic claims, no matter how qualified, to be made in advertising supplementary levels.

The failure to tell all may be a most pernicious practice in the commercial exploitation of nutrition, and one very difficult for any regulatory body or censor to deal with because what is said is carefully made to be factually true. Criticism of this practice meets the reasonable argument of the copy writer that limitations of language make it impossible, in the time or space available, to tell the entire story. This argument seems valid unless the public of average normal intelligence and information would probably be misled by the offending copy. It is recognized that any idea, even if expressed in the simplest and clearest of statements, may be misleading to some portion of the less intelligent, less informed and more gullible public. This fact should not prevent an advertiser from using a true statement which most of the public is capable of understanding without misinterpretation.

Examples of failure to tell all are numerous and include the stressing of economy of vitamin preparations as compared to food costs, incomplete quotations or lifting quotations from their context so as to give wrong implications, incomplete statistics, the enumeration of signs and symptoms of deficiency disease which vitamins will in truth prevent but without information that these signs and symptoms are not specific for nutritional disorders only and may occur as a result of nonnutritional diseases and the implication that this or that preparation will make the user more alluring to the opposite sex, except as far as the preparation will help maintain normal health. One of the most common failures to tell all is the implication that synthetic vitamins may be harmful or in supplemental levels have effects like drugs, that natural vitamins alone are effectual or that they have a value superior to

5. Federal Trade Commission Docket No. 2979, Washington, D. C. July 20, 1945.

6. Wilder, R. M.: Thiamine Deficiency. *M. Clin. North America* 27:409 (March) 1943. Johnson, R. E.; Darling, R. C.; Forbes, W. H.; Brocha, L.; Ecarra, E., and Gravel, A.: Effect of Diet Deficient in Part of Vitamin B Complex on Men Doing Manual Labor. *J. Nutrition* 24:585 (Dec.) 1942. Jolliffe, N.; Goodhart, R.; Gennis, J., and Cline, J. K.: Experimental Production of Vitamin B₁ Deficiency in Normal Subjects. Dependence of Urinary Excretion of Thiamine on Dietary Intake of Vitamin B₁. *Am. J. M. Sc.* 198:198 (Aug.) 1939. Foite, E. E.; Barbock, C. J., and Ivy, A. C.: The Level of Vitamin B Complex in the Diet at Which Detectable Symptoms of Deficiency Occur in Man. *Gastroenterology* 2:323 (May) 1944.

7. Kruse, H. D.; Besser, O. H.; Jolliffe, N.; McLester, J. S.; Tisdall, F. F., and Wilder, R. M.: Inadequate Diets and Nutritional Deficiencies in the United States: Their Prevalence and Significance. *Bull.* 109, National Research Council, November 1943.

synthetic vitamins. This common implication, based on the fact that natural foods or concentrates contain values and substances other than their known vitamins, has been so misused that the Food and Nutrition Board of the National Research Council has recently gone on record to the effect that "there can be no possible difference between thiamine prepared synthetically and that which is extracted from a natural source of thiamine such as wheat or meat (or yeast). The same is true of riboflavin and of other vitamins that thus far have been synthesized. A vitamin is a chemical compound whether it is made by nature or by man."*

Advertising puffery beyond reasonable limits is another method of exploitation that is difficult to regulate; courts have held that advertising puffery, within reasonable limits, is not improper. "Within reasonable limits" may mean one thing to a regulatory body and something else to a copy man attempting to sell, in a highly competitive market, a product that is no better or no worse than a dozen other similar products. Reasonable limits include some puffing of the product based on a unique manufacturing device or on a peculiar and unique balance or unusual mixture, if in truth there

that are needed to avoid dietary inadequacies and resulting deficiency diseases. In contrast, there is fair unanimity that the National Research Council's Recommended Daily Allowances represent approximately the amounts of essential nutrients needed to insure, for population groups, a fair margin of safety in everything that food can contribute toward the long-range advancement of human welfare.

Wilder⁹ has pointed out that the daily allowances have at times been misused when it was suggested that the failure of a diet to meet these recommended quantities of nutrients is *ipso facto* evidence of dietary inadequacy or, still worse, of nutritional abnormality. This inference was unwarranted, "as the recommended allowances include a factor of safety of at least 30 per cent to provide for persons whose requirements may be greater than average. . . ." The failure of a population group to meet these requirements, therefore, does not mean that the group as a whole has an inadequate or deficient diet. It does mean, however, that the diet is unsatisfactory in that it fails to provide adequate nutrients for some persons whose requirements are in excess of the dietary intake. Since the

TABLE 4.—Estimated Nutritive Value of Civilian Food Supply for 1935-1939, 1943 and 1944, Showing Effect of Certain Allowances*

(Previous Levels and Recommended Dietary Allowances are shown for comparison)
(Expressed as Daily Quantities of Nutrient per Capita)

	Energy Value, Calories	Protein, Gm	Fat, Gm	Carbo- hydrate, Gm	Calcium, Mg	Phos- phorus, Mg	Iron, [†] Mg	Vita- min A, I. U	Thia- mine, [‡] Mg	Ribo- flavin, [‡] Mg	Niacin, [‡] Mg	Vita- min C, Mg
After allowance for edible waste and cooking losses												
1935-19 supply...	2,910	84	122	492	810	1,770	12	7,400	1.1	17	11	76
1943 supply	3,170	91	132	491	970	1,570	14	8,700	1.6	2.0	14	84
1944 supply	2,330	81	122	495	940	1,790	15	8,300	1.7	2.3	15	83
N. R. C. recommended dietary allowances†	2,700	65	...	...	900	...	...	4,000	1.5	2.2	15	70

* Excerpt from Table 2 of a personal communication from Charlotte Chutfield, chief, Food Needs Section, Civilian Food Requirements Branch, Office of Marketing Services, War Food Administration, April 3, 1945.
† Assumes 65 per cent enrichment of white bread and flour.
‡ Weighted for composition of the civilian population. Expressed in terms of food as eaten.

are advantages. Unreasonable limits would seem to be when claims are made for some vitamin or mineral whose value in human nutrition has not yet been established, to claim or imply that this or that preparation will enable a person to neglect his diet and that he will be as well as or better off than with consumption of a satisfactory diet or to claim or imply that this or that preparation will enable a normal person who always consumed a satisfactory diet to feel better. All of these inferences have been decisively exploded.

Another group of facts susceptible to much puffery by advertisers and to arbitrary decisions on the part of regulatory bodies are reports on the prevalence of inadequate diets among the general population, and claims or inferences concerning either the ease or the impossibility of the average consumer's obtaining an adequate diet from food alone.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION noted in an editorial "that there is a real difference as measured in terms of growth, development and general health record between optimum and just adequate nutrition; and that every practical effort should be made to apply this knowledge in the interests of human welfare." Much controversy exists concerning the minimum amounts of the various specific nutrients

individual usually has no way of knowing whether his needs are below average or above, and since those responsible for feeding population groups have no practical way of segregating those with nonaverage requirements, the only diet "that can be countenanced is one that provides enough for all well persons whether their requirements as related to the average are high or low."

Using the National Research Council's recommended daily allowances as criteria for a satisfactory diet, the Bureau of Agricultural Economics of the United States Department of Agriculture¹⁰ has shown that the food that disappeared into civilian retail consumption in 1944 contained after conservative deductions for waste and deterioration of ingredients in storage, transportation, cooking, leaching and serving satisfactory levels of nutrients. In 1943 the figures for riboflavin and niacin were not satisfactory. In the period 1935-1939 the available dietary levels of thiamine, riboflavin, niacin and calcium were unsatisfactory (table 4). These calculations are based on per capita consumption. It is not to be supposed that perfect distribution has ever been obtained, so that the number of people who received both above and below the per capita portions must be numerically large. Bearing out these figures of food

⁹ Wilder, R. M., and Williams, P. R. Enrichment of Flour and Bread. A History of the Movement, Bull. 110, National Research Council, November 1944.

¹⁰ Wilder, R. M. Misinterpretation and Misuse of the Recommended Dietary Allowances, Science 101: 285 (March 23) 1945.
¹¹ Chutfield, C. Personal Communication as Chief of Food Needs Section, Civilian Food Requirements Branch, Office of Marketing Services, War Food Administration, April 3, 1945.

availability are the dietary survey records compiled by a committee of the National Research Council in 1943,⁷ which disclosed that unsatisfactory diets were widespread in all sections of this country. Later surveys made since this review of the National Research Council's committee have reflected the overall improvement in the nutrients available per capita in 1943. For example, the Bureau of Human Nutrition and Home Economics reported in 1944 that "in 1936 about three fourths of the families in the United States had diets that did not meet the National Research Council's recommendations for riboflavin; and about half had diets that were low in calcium, thiamine and ascorbic acid. It is estimated that in the spring of 1942 the diets of more than half of the families still did not meet the recommended allowances for riboflavin and that the proportion of diets low in calcium had been reduced to less than a third; the proportion low in thiamine to a fourth, and the proportion low in ascorbic acid, in which there was the greatest improvement, to less than a tenth. Some of the improved situation in respect to ascorbic acid was a result of seasonal increases in the consumption of citrus fruit and leafy greens. There was also a great reduction in the estimated proportion of families that had diets failing to meet current recommendations in vitamin A value, iron and protein, from about a fourth in the earlier period to around a tenth in the later period."¹¹ It is well to bear in mind, as pointed out by these investigators, that the estimates for both periods "are optimistic, since no correction has been made for nutrient losses in food preparation."¹¹

The American Institute of Public Opinion¹² in February 1943 made a single day nationwide survey of consumption of the seven groups of foods considered essential in a satisfactory diet as recommended by the Bureau of Human Nutrition and Home Economics. The results presented in table 5 show that a significant fraction of the American population in all economic groups fails to include all the basic foods in the daily diet. As has been pointed out, this means that the diet is probably unsatisfactory.

In a survey conducted during August, September, November and December 1943 by Lockhart and his associates¹³ actual chemical analysis was made of duplicate meals eaten by 71 individuals selected to obtain a distribution of age (above 5 years), sex, activity and economic status similar to that of the nation as a whole. By these analyses the average daily intake was found to be satisfactory in ascorbic acid, calcium and iron and unsatisfactory in thiamine, riboflavin and niacin. Only 7 per cent of the subjects, however, received a satisfactory level of all the nutrients analyzed, and all of these were children. Assuming that the National Research Council's recommended allowances included a margin of safety of approximately one third above the "protective" levels, these investigators found that 21 per cent of the subjects failed to obtain a "protective" amount of all nutrients.

Concurrently with this chemical dietary analysis a one day survey was made of the diets of 3,336 persons

in all parts of the United States. The quality of the food selection in this large group was definitely inferior to that of the 71 individuals whose diets were examined by chemical analysis. "Thus it is possible that the dietary intake of the nation at the time this study was made was even less adequate than that of the small group whose diets were analyzed."¹³ It seems therefore that, compared to the satisfactory diet, there is a high prevalence of unsatisfactory diets in all sections of this country. To take any other stand is to ignore the facts.

While it is possible, if one has the necessary information, education and income to purchase an adequate diet, it is obviously also not easy for the average person who does not know the difference between a calory and a vitamin to make this selection. This fact is borne out by the experience of investigators who have actually computed the values in dietaries consumed by those who are reasonably intelligent and have the necessary means to purchase whatever food they please.

These are the conditions on which the commercial exploitation of vitamin preparations is based and which make possible the abuses that have been described. They are also the conditions which create an oppor-

TABLE 5.—Percentage of American Adults Who Omitted One of the Seven Groups of Essential Foods*

Food Group	Upper Income	Middle Income	Lower Income	Average
Fruits and raw greens f.....	24	35	56	45
Eggs: 1 a day.....	45	43	52	48
Milk or cheese or both.....	27	26	40	34
Vegetables: 1 leafy green or yellow.....	19	21	29	25
Meats: meat, fish or poultry.....	7	8	15	12
Other vegetables or fruit.....	6	6	10	8
Cereals or bread: whole grain or enriched.....	3	2	3	3

* Compiled from Report of American Institute of Public Opinion.¹²

f Tomatoes, citrus fruits or juices, raw cabbage or salad greens.

tunity for the physician to serve his patients and the public welfare by employing the advances in our knowledge of nutrition in such a way as to promote health.

CONCLUDING STATEMENT

The physician can contribute decisively to the preservation and the improvement of his patients' health by judicious nutritional advice as to satisfactory dietaries and the appropriate prescription, when indicated, of supplementary and therapeutic levels of vitamins.

Though a satisfactory diet is the best way to insure optimum nutrition, practicality dictates the use of supplementary levels of vitamins whenever a patient is not regularly consuming a satisfactory diet. When, however, signs of a dietary deficiency disease are manifest, supplementary levels of vitamins are inadequate and nutritional therapy is indicated.

The commercial exploitation of vitamins is subject to certain abuses, particularly the making of exaggerated claims, the publicizing of statements which, by failing to tell all, allow unfounded inferences to be made, and unreasonable puffery. These abuses may lead to a loss of public confidence and rejection of the good in scientific nutrition as well as the bad in its exploitation. For self interest over the long pull firms advertising directly to the public should censor their copy so that false claims or false inferences are eliminated.

39 East Seventy-Fifth Street, New York 21.

11. Phippard, E. F., and Adelson, S. F.: Family Food Consumption in the United States, Spring 1942, Misc. Pub. 550, U. S. Dept. Agric., 1944.

12. Gallup Poll Tests Wartime Eating Habits (News From the Field), *Am. J. Pub. Health* 33: 470 (April) 1943.

13. Lockhart, E. E.; Harris, R. S.; Tapia, E. W.; Lockhart, H. S.; Nutter, M. K.; Tufan, V., and Nagel, A. H.: Study of the Nutritional Quality of Dietaries by Chemical Analysis, *J. A. Diet. Assn.* 20: 742 (Dec.) 1944.

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SATURDAY, OCTOBER 27, 1945

NUTRITION IN THE NETHERLANDS

During the later part of the recent war in Europe the Netherlands was known to be one of the German occupied countries suffering severely from malnutrition. Reports reaching the liberated area from still occupied western Holland toward the end of last October attested to the extreme degree of food shortage and starvation existing there. Careful plans were made for a rapid survey of the nutritional status of these people by three teams of Allied nutrition experts promptly following their liberation. Stocks of special foods for treatment of the most desperate situations were imported, and fifty-one Dutch medical feeding units were organized and trained in their use.

The preliminary report on this problem of mass starvation¹ indicates the extensive ramifications of prolonged consumption of food at caloric levels of approximately 1,000 calories per day. The people complained of bodily and spiritual exhaustion. Dizziness and a tendency to collapse on prolonged standing were commonplace. Complaints of backache, leg-ache, chilliness and numbness of the extremities were frequent. Wasting and emaciation were striking in the appearance of the people. The skin was pale, sometimes with dun pigmentation of the face, and petechiae or larger superficial hemorrhages were noted on the backs of the hands. Hunger edema was not universally found but was present in about 20 per cent of those examined in a "street clinic" in Rotterdam.² This appeared most often in the lower part of the body and varied in all degrees of severity. The skin of other parts of the body at the same time often showed signs of desiccation. Objective findings sufficient to justify a diagnosis of frank scurvy, beriberi, pellagra or vitamin A deficiency were not encountered, although the incidence of purpuric manifestations, sensory changes, cheilosis and follicular hyperkeratosis was considerable. The heart was usually normal, although pulse rates often down to

40 per minute, systolic blood pressures to 80 mm. of mercury and body temperatures of 95 F. pointed to a low vitality. All of the persons seen were anemic, with hemoglobin values of about 11 Gm. per hundred cubic centimeters and a color index of 1 or slightly greater. A general osteoporosis had developed in some patients suffering from starvation. Those most severely affected had pain in the bones, and some had developed a progressive kyphoscoliosis of the upper part of the spine. In other less emaciated cases joint pains were often reported. Approximately 5 per cent of the total population of the areas examined were found to be in a serious state of undernutrition. These persons for the most part dwelt in the larger cities.

Treatment of the more severe cases consisted in absolute bed rest and conservation of body heat. Comparative observations were made on the effectiveness in initiating recovery of enzymic protein hydrolysates with and without added glucose and vitamins and a diet of high protein-moderate calory content. The hydrolysates were frequently distasteful and an aversion to them, sometimes vomiting, developed although they caused no other untoward intestinal symptoms. Psychologically the patients thought they were getting insufficient food. Hydrolysates in low concentration had little beneficial effect on the edema or apathy. Two liters of 7.5 to 10 per cent hydrolysate with an equal quantity of glucose daily had a moderately good effect. Others given 80 Gm. of protein with a 2,000 calory diet lost their edema but did not gain weight. Subsequently additional calories added in the form of 100 Gm. of butter produced a gain in weight and general improvement. The best results were obtained from a diet containing 300 Gm. of natural protein and 3,200 calories. For those who were too weak or refused to take food because of mental disturbance due to starvation the hydrolysate-glucose mixture administered by gavage was valuable for a short time until ordinary feeding could be instituted. In the hands of these nutritionists 5 per cent acid casein hydrolysate given intravenously caused thrombosis and when used alone did not secure favorable results.

Many of the complications were closely related to the extreme malnutrition and responded to generally improved nutrition rather than to specifics. Thus the severe anemias were not influenced by administration of vitamins, liver extract, injections or iron preparations with or without hydrochloric acid but slowly improved after sufficient feeding. The hemorrhagic diathesis did not respond to ascorbic acid but disappeared slowly with the general improvement. In other instances the use of such specific agents as nicotinamide for sore, red tongue and vitamin D for the bone dystrophies brought improvement rapidly.

In spite of the utilization of all therapeutic weapons in the modern scientific armamentarium for the correction of the nutritional deficits, approximately 10 per

1. Burger, G. C. E.; Sandstead, H. R.; Drummond, Sir Jack: Starvation in Western Holland: 1945, *Lancet* 2: 282 (Sept. 1) 1945.

2. Stare, F. J.: Nutritional Conditions in Holland, *Nutrition Reviews* 3: 225 (Aug.) 1945.

cent of the persons requiring hospital admission died. Many in a state of shock or severe atrophy proved refractory to the use of hydrolysates or other emergency treatments. The positive as well as the negative results secured from observations made under the unusual conditions of this study contribute importantly to our knowledge of human nutrition.

VACCINATION AGAINST INFLUENZA

In April 1944 the preliminary report by the members of the Commission on Influenza on the prophylactic value of vaccination against influenza appeared in *THE JOURNAL*.¹ The virus for the preparation of the vaccine was obtained from allantoic fluid of embryonated hen's eggs inoculated forty-eight hours earlier. The virus was concentrated ten times in isotonic solution of sodium chloride following adsorption to and elution from the embryonic erythrocytes. The infectious capacity was inactivated by solution of formaldehyde in a concentration of 1:5,000. Phenyl mercuric nitrate 1:100,000 or borate 1:50,000 was then added for bacteriostatic purposes. Each cubic centimeter of the vaccine was made up of 0.5 cc. representing type A virus recovered from 5 cc. of allantoic fluid and 0.5 cc. representing the type B virus recovered from 5 cc. of allantoic fluid. The type A component represented equal parts of the PR8 strain and of the Weiss strain, isolated in May 1943. The type B component contained only the Lee strain. The study was carried out in Army Specialized Training Program units of eight universities in different parts of the United States and in a ninth group comprising the members of Army Specialized Training Program units of five New York medical and dental colleges. Approximately 12,500 men were involved. Each company or organization within a unit was divided in half, so that alternate individuals received, respectively, vaccine and control material. The commission stated in its preliminary report that vaccination done shortly before or even after the onset of the epidemic was found to exert a protective effect with a total attack rate of 2.22 per cent among the 6,263 vaccinated and 7.11 per cent among the 6,211 controls, a ratio of 1 to 3.2. The influence of vaccine was most clearly evident at the height of the epidemic prevalences.

In a subsequent communication Thomas Francis Jr.,² director of the commission, gives a more detailed analysis of the evidence obtained. Correlation of the individual reports from the various units demonstrates for the first time, according to Francis, that subcutaneous vaccine of the human population with inactivated influenza virus vaccine exerts a pronounced effect on susceptibility to influenza A during an epidemic of

high incidence. Rickard and his associates³ at the University of Minnesota found the clinical attack rate during an epidemic of influenza which began eleven days after vaccination to be 2.7 per cent, as compared to 9.06 per cent in the control group. The epidemic was proved to be due to influenza A by virus isolation, by positive serologic response or by both in a high percentage of clinical cases. The antibody response to influenza A virus produced by the vaccine was pronounced and similar to that caused by natural infection. Hale and McKee⁴ report from the University of Iowa that one subcutaneous inoculation with the influenza vaccine used in this area at the beginning of the epidemic effectively decreased the incidence of the disease in the vaccinated group.

In contrast to these are the observations of Eaton and Meiklejohn⁵ on their experiences with vaccine in California. They found that the gross incidence of febrile respiratory disease during the outbreak of influenza A was not appreciably different in a group of 796 vaccinated students from that in a group of 773 controls. In serologic tests by the Hirst chicken erythrocyte agglutination method, 19 of 63 patients with influenza A showed an insignificant rise in titer (twofold or less) with the strain PR8, while only 1 failed to show a fourfold increase in the same test with one of the current infecting strains. The effects of antigenic variations in the infecting strains of virus, of differences between the two vaccine preparations used, of the interval vaccination and infection and of other factors are considered as possible causes for the inferior results of vaccination in California as compared with those of other investigators using the same vaccines. Hirst and his associates⁶ report their experiences with vaccine at Princeton and Rutgers universities and the College of the City of New York. An epidemic of influenza A was investigated in the three populations. The epidemic was of mild character and affected about 8 per cent of untreated persons. The attack rate of the disease was 77 per cent lower among vaccinated than among control individuals, and demonstrable immunity first appeared on the eighth day after vaccination. Salk and his associates⁷ at the University of Michigan found an incidence of 8.58 per cent of cases hospitalized for influenza among 875 control cases and an incidence of 2.27 per cent among 878 vaccinated persons; thus 3.7 times as many cases developed in controls as among vaccinated individuals. Antibody

3 Rickard, E. R., Thigpen, Minnie, and Crowley, James H. Vaccination Against Influenza at the University of Minnesota, *Am. J. Hyg.* 42:12 (July) 1945.

4 Hale, William M., and McKee, Albert P. The Value of Influenza Vaccination When Done at the Beginning of an Epidemic, *Am. J. Hyg.* 42:21 (July) 1945.

5 Eaton, Monroe D., and Meiklejohn, Gordon. Vaccination Against Influenza: A Study in California During the Epidemic of 1943-1944, *Am. J. Hyg.* 42:28 (July) 1945.

6 Hirst, George K., Plummer, Norman, and Fricke, W. F. Human Immunity Following Vaccination with Formalized Influenza Virus, *Am. J. Hyg.* 42:45 (July) 1945.

7 Salk, Jonas E., Menzies, Walter J., Jr., and Francis, Thomas, Jr. A Clinical, Epidemiological and Immunological Evaluation of Vaccination Against Epidemic Influenza, *Am. J. Hyg.* 42:57 (July) 1945.

1 Members of the Commission on Influenza, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, Preventive Medicine Service, Office of the Surgeon General, United States Army. A Clinical Evaluation of Vaccination Against Influenza, *J. A. M. A.* 124:682 (April 1) 1944.

2 Francis, Thomas, Jr. The Development of the 1943 Vaccination Study of the Commission on Influenza, *Am. J. Hyg.* 42:1 (July) 1945.

studies on serums obtained from a sampling of the control group before and after the epidemic revealed serologic evidence of influenza A infection in 41 per cent. These authors believe that dilution of the controls with an equal number of vaccinated persons in the study population may have reduced the incidence of disease among the controls and that a comparison of attack rates in completely vaccinated groups, if all other conditions were equal, would demonstrate a greater effect of vaccination than was apparent in this study. The observation that the differences in incidence between control and vaccinated subjects were greatest at the height of the epidemic and diminished as the epidemic progressed is interpreted to mean that the difference in concentration of susceptible persons was most pronounced at the onset and peak of the influenza prevalence. As the epidemic advanced by the natural immunizing procedure the concentration of susceptible persons in both control and vaccinated groups tended to approach the same level.

A striking relationship was observed between the level of serum antibody and frequency and severity of illness, in both control and vaccinated groups, when titers for the Weiss strain of type A virus were analyzed, while the trend was only suggestive in terms of the titers for the PR8 strain. The Weiss strain, isolated six months prior to the onset of the epidemic, appears to have been closely related antigenically to the strain prevalent during the outbreak in this area. The data indicate the existence of an antibody zone above which titers may have to be raised to produce the desired effect.

Current Comment

STREPTOMYCIN AND PROMIN IN EXPERIMENTAL TUBERCULOSIS

Guinea pigs infected with tuberculosis were employed by Smith and McClosky¹ to determine whether streptomycin has any beneficial effect, to compare the results of streptomycin therapy with the sulfone promin and to explore the possibilities of combined treatment with these two chemotherapeutic agents. Under the experimental conditions of treatment streptomycin injected intramuscularly produced a definitely greater chemotherapeutic effect than promin. The dose of promin used was about one half the maximum tolerated dose, while the dose of streptomycin used was less than one twentieth of its maximum tolerated dose; hence streptomycin had a therapeutic index at least ten times that of promin. Neither of these agents used alone completely eradicated the tuberculous process. Larger doses and better methods of administration may well increase the therapeutic effect of streptomycin. By the application of a suitable combination of promin and streptomycin, Smith and McClosky obtained results better than any

they had ever achieved before in the treatment of experimental tuberculosis infections. They believe their experimental results warrant the cautious application of combined treatment to selected patients.

PUBLICITY FOR SCIENTIFIC MEDICINE

Publicity for new discoveries in the field of medicine is a two edged sword. It may extend the hopes of the public far beyond what is warranted. It may cause pressure on physicians to try methods of treatment that may not be desirable. On the other hand, the public is certainly entitled to know about new discoveries in medicine and their significance in relation to the maintenance of health and the prevention of disease. Recently the periodical *Nordisk Medicin* has developed a special technic in relation to the scientific medical articles that it publishes with a view to solving this problem. When an article is undesirable or unready for public exploitation, the editors place at the top of the article as published in the medical journal the phrase "Ömtale i dagpressen förbjudes." This means that reproduction in the daily press is forbidden. Since the material in the publication is covered by controls, as our periodicals are covered by copyright law, this would seem to serve the purpose of delaying publicity for scientific contributions until the medical profession itself considers such publicity warranted.

METABOLIC FUNCTION OF PYRIDOXAL

Pyridoxal,¹ the δ -aldehyde of pyridoxine (vitamin B₆), apparently plays an important part in certain biochemical reactions. Gale and Epp² demonstrate in the case of bacterial decarboxylases that the enzymes decarboxylating the amino acids L-lysine, L-tyrosine and L-arginine are composed of two portions, a coenzyme-lase and a protein apocoenzyme-lase. Both portions must be present to promote enzyme action. All of the enzymes appear to have a common coenzyme-lase which has been obtained from yeast. Pyridoxal when added to the dried bacterial cells alone is inactive, but, if adenosine triphosphate is added, decarboxylation of amino acids occurs; the function of the adenosine triphosphate is to phosphorylate the pyridoxal, forming pyridoxal phosphate. Recently Baddiley and Gale³ phosphorylated pyridoxal chemically; when it was added to the apocoenzyme-lase, full enzymatic activity for the decarboxylation of either tyrosine, arginine, lysine or ornithine was regenerated. Until pure compounds are isolated it cannot be proved that the coenzyme produced from pyridoxal through activation with yeast juice is identical with that obtained by strictly chemical activation. Nevertheless the foregoing observations offer considerable evidence regarding the function of pyridoxal in bacteria. The research here reported is a fine example of the manner in which fundamental knowledge of the nature of bacteria is being acquired that may lead eventually to new techniques for control.

1. Smith, I. and McClosky, W. J. Biol. Chem. 156:433 (June) 1913.

2. Gale, E. P., and Epp, Helen M. R. Biochem. J. 8:1252 (No. 1) 1914.

3. Baddiley, J., and Gale, E. L. Nature 156:227 (June 19) 1915.

1. Smith, M. L., and McClosky, W. J.: The Chemotherapeutic Action of Streptomycin and Promin in Experimental Tuberculosis. Pub. Health Rep., 60:1119 (Sept. 22) 1915.

MEDICINE AND THE WAR

ARMY

ATYPICAL LICHEN PLANUS AMONG PACIFIC TROOPS

The Office of the Surgeon General recently revealed that army doctors in the Southwest Pacific have found fewer than 3 cases per thousand men of a new noncontagious skin disease, which has been named atypical lichen planus and is known to the soldier as one of the varieties of "jungle rot."

Atypical lichen planus apparently becomes active partly because of an occasional unusual sensitivity of a few individuals to atabrine, the drug which was used so successfully in combating malaria among troops in the tropics, army medical reports indicate. However, army doctors emphasize that the vast majority of persons who take atabrine regularly are not affected.

First reports describing this disease were submitted by two army dermatologists in the Southwest Pacific: Lieut. Col. Charles Schmitt of Pittsburgh and Major Thomas Nisbet of Pasadena, Calif. Their studies convinced them that atabrine was the underlying cause. Although medical officers agree with this opinion, they also recognize that many factors are probably contributory. These include skin injuries and irritations of many kinds, excessive exposure to sunlight, profuse perspiration, dietary deficiencies, and emotional and nervous factors. Older men have been found to be more susceptible than younger men, and the disease has also occurred among nurses and Wacs.

Studies revealed that the few men and women who did contract the disease did so after atabrine had been taken only for several months, not regularly over a prolonged period.

Medical officers soon learned to recognize atypical lichen planus in its early stages and were able to prevent its spread to other parts of the body. In all but a small percentage of cases the disease has cleared up under treatment.

PRODUCE FOURTEEN OUNCES OF STREPTOMYCIN A MONTH

The War Department recently stated that streptomycin, a new wonder sister drug to penicillin, was being used in thirty army general hospitals over the country but that it was so difficult to obtain that the total output of the four companies now making it has been only 14 ounces a month.

Major Gen. Norman T. Kirk, Surgeon General of the Army, said that the Army was receiving many requests for the drug for use in treatment of urinary and other infections caused by gram negative bacteria which do not respond to penicillin but that these cannot be met since the Army neither controls the supply nor can get enough for its own needs in treatment of soldiers wounded in battle. "The Army and Navy are purchasing only a part of available production," General Kirk said. "In August, 28 ounces or 800,000,000 units was purchased. Joint Army-Navy expectations for September are 162 ounces, but it is anticipated that production will be not more than 70 ounces. It is hoped that Army-Navy procurement can be doubled in October for military needs alone now are about 2,000 ounces a month."

General Kirk stated that Merck, Upjohn, Abbott and Squibb were the principal manufacturers of the new product but that other concerns were working at experimental production at pilot plants and that any civilian request for streptomycin naturally would go to these companies.

MERITORIOUS SERVICE PLAQUE

The 45th General Hospital was recently awarded the Meritorious Service Unit Plaque for superior performance of duty in the accomplishment of exceptionally difficult tasks in the Peninsular Base Section for the period June 1, 1944 to Dec. 1, 1944.

AVIATION MEDICAL EXAMINERS GRADUATE

One hundred and forty-five medical officers recently completed the Aviation Medical Examiners' course at the Army Air Forces School of Aviation Medicine, Randolph Field, Texas. Lieut. Col. Fratis L. Duff, assistant commandant of the school, presented awards to 145 flight surgeons and 20 flight nurses.

CLINICAL PSYCHOLOGIC SERVICES

Because of the close relationship between psychiatry and clinical psychology, the Office of the Chief, Clinical Psychology, Classification and Replacement Branch, Adjutant General's Office, has been recently transferred to the Office of the Surgeon General. Col. Morton A. Seidenfeld has been assigned as chief, Clinical Psychology Branch, Division of Neuropsychiatric Consultants, and Capt. L. I. O'Kelly has been designated assistant chief of the Clinical Psychology Branch.

Provision has also been made for the detail of all clinical psychologists now serving as officers into the Medical Administrative Corps. This step will permit an increase in the effectiveness of their utilization in medical installations where they will be under the direct control of the Medical Department.

ARMY HOSPITAL UNIT COMMENDED

The 20th General Hospital was recently commended the citation being addressed to Lieut. Gen. Dan. I. Sultan, U. S. Forces, India-Burma theater: "Under extremely difficult climatic conditions and in an area devoid of practically everything usually considered necessary for the construction and operation of a general hospital, you have built an institution that has been complimented by every one who has visited it. The record of the 20th General Hospital would be outstanding in any theater of operations. Much of this achievement can be attributed to your fine qualities of leadership, but your officers, including your nurses, and all of your men have shown a devotion to duty which is worthy of the highest praise."

165TH STATION HOSPITAL COMMENDED

The 165th Station Hospital, under the command of Col. G. I. Sneiderman, was recently commended "for its superior performance and outstanding devotion to duty during operations against the enemy from Dec. 26, 1944 to June 30, 1945. The untiring effort and high degree of professional skill evidenced by all officers and enlisted men have contributed materially to the alleviation of suffering of the wounded and the survival of many who were critically wounded. The inspiring manner in which the 165th Station Hospital has carried out its mission reflects great credit on the Medical Department and the military service as a whole."

OLD FARMS CONVALESCENT HOSPITAL CITED

The Old Farms Convalescent Hospital (Special) at Avon, Conn., was recently awarded the Meritorious Service Unit Plaque for its work with the blinded soldiers. In making the award Major Gen. Norman T. Kirk, Surgeon General of the Army, said "The Old Farms Convalescent Hospital (Special), first established in June 1944, quickly developed into an institution unique in its kind in the country, even in the world. Able administered, the institution has taken over the important problem of social adjustment of the blinded soldier and in these relatively few months has succeeded in its purpose admirably."

ARMY AWARDS AND COMMENDATIONS

Major Clement E. Steyer

Major Clement E. Steyer, formerly of Cleveland, was recently awarded the Bronze Star for achievement in support of combat operations while on duty on the Army Hospital Ship *Emily H. M. Weder* from August 1944 to March 1945. The citation accompanying the award explained that "during the invasion of southern France, in the Italian combat zone and later in the landings on Leyte and Luzon in the Philippines this hospital ship participated in the evacuation of wounded from the established beachheads. Under difficult working conditions and in perilous water he personally supervised the screening of arriving casualties aboard ship and organized shock teams for immediate medical therapy. Complementing his medical administrations with a refreshing sense of humor and a calm manner, he consistently placed evacuated patients in a far healthier frame of mind and gave them confidence. His achievements contributed greatly to the recovery, both physical and mental, of many casualties and reflected great credit on the medical service." Dr. Steyer graduated from St. Louis University School of Medicine in 1924 and entered the service Oct. 19, 1942.

Captain Gustavo A. Motta

The Bronze Star Medal was recently awarded to Capt. Gustavo A. Motta, formerly of Providence, R. I., for "meritorious service in connection with military operations against an enemy of the United States in eastern France and Germany from March 1, 1945 to April 24, 1945. During the division's offensive operations against the enemy in eastern France and Germany between March 1 and April 24, 1945, Captain Motta, as battalion surgeon, performed his duties in an outstanding manner. Despite the necessity of working long hours and under adverse conditions, oftentimes under enemy fire, he displayed superior knowledge and unusual professional ability in the care and treatment of our sick and wounded. His medical skill and untiring efforts contributed substantially to the maintenance of a high standard of medical treatment within the battalion. His outstanding professional ability and selfless devotion to duty and the wounded reflect the highest credit on Captain Motta and on the armed forces of the United States." Dr. Motta graduated from Georgetown University School of Medicine, Washington, D. C., in 1940 and entered the service Feb. 25, 1944.

Captain Spencer Myers

Capt. Spencer Myers, formerly of Ossining, N. Y., was recently awarded the Bronze Star in recognition of his meritorious performance of duty in connection with military operations against the enemy near Luzon in the Philippines. The citation read, in part, "He not only worked as a battalion surgeon in an efficient and untiring manner but was also outstanding in rendering medical attention to two enlisted men who had been wounded by fragments of a knee mortar." Dr. Myers graduated from New York University College of Medicine, New York, in 1932 and entered the service Aug. 15, 1942.

Major Thomas N. Horan

The Bronze Star was recently awarded to Major Thomas N. Horan, formerly of Detroit, "for meritorious achievement in support of military operations." He is chief of officers' section in the 17th General Hospital (U. S.), a unit which was presented with the Meritorious Service Unit Plaque for superior performance of duty in connection with furnishing medical service to the Fifth Army and other U. S. Troops in the Mediterranean Theater of Operations. Dr. Horan graduated from the University of Michigan Medical School, Ann Arbor, in 1926 and entered the service July 15, 1942.

Lieutenant Colonel Alfred Campbell Ledoux

Lieut. Col. Alfred Campbell Ledoux, formerly of Evanston, Ill., was recently awarded the Bronze Star. The citation read, in part, "Lieut. Col. Alfred Campbell Ledoux, while serving in the Army of the United States, distinguished himself by

meritorious service in connection with military operations not involving aerial fight against an enemy of the United States. As chief of the x-ray service, 108th General Hospital, Lieutenant Colonel Ledoux was instrumental in the discovery, the reconstitution of and the early adaption of captured German x-ray and radiotherapy equipment. This was accomplished by virtue of his initiative, specialized technical knowledge and highly professional attainments. The immediate availability of this splendid equipment at a time when transport of our own equipment was extremely difficult and uncertain, owing to the exigencies of the military situation, materially assisted in the diagnostic care and treatment of many thousands of casualties." Dr. Ledoux graduated from Tufts College Medical School, Boston, in 1929 and entered the service Jan. 1, 1943.

Major Robert K. Whitely

The Bronze Star was recently awarded to Major Robert K. Whitely, formerly of Detroit, who, while a prisoner of war in Japanese Prison Camp No. 1, Cabanatuan, Philippine Islands, from October 1944 to January 1945, performed conspicuous service as ward surgeon in a general hospital. The citation called attention to the fact that "with improvised, makeshift equipment and depleted medical supplies, he labored against great odds and on a starvation diet. In addition to his medical tasks he assumed the very difficult assignment of provost marshal of the prison camp. He was responsible for interpreting Japanese regulations and orders and having them carried out in every detail. He also maintained order in camp and administered appropriate disciplinary measures when necessary. His outstanding performance under extremely difficult and hazardous conditions contributed in great measure to the well-being of his fellow prisoners of war." Dr. Whitely graduated from the University of Michigan Medical School in 1933 and entered the service Nov. 5, 1940.

Colonel Ernest H. Parsons

Col. Ernest H. Parsons, commanding officer of the 108th General Hospital, Paris, France, was recently awarded the Legion of Merit for conspicuous service during the Battle of the Bulge last December. At the time of the von Rundstedt breakthrough near Liège, Belgium, Colonel Parsons was commanding officer of the 130th General Hospital. On Christmas eve the Americans were compelled to withdraw and leave the seriously wounded in the hospital. Although he could have appointed any of his officers to remain, Colonel Parsons, with two junior medical officers and twenty-five enlisted men, stayed in the hospital to care for the wounded. The Germans occupied the position and advanced beyond it. For three days, over the Christmas holiday, Colonel Parsons and his cadre worked behind the German lines. Dr. Parsons graduated from Vanderbilt University School of Medicine, Memphis, in 1930 and entered the service June 11, 1930.

Colonel Henry R. Carstens

The Legion of Merit was recently awarded to Col. Henry R. Carstens, formerly of Detroit, "for exceptionally meritorious conduct in the performance of outstanding services." Dr. Carstens is the commanding officer of the 17th General Hospital (U. S.), a unit which received the Meritorious Service Unit Plaque for superior performance of duty while furnishing medical service to the Fifth Army and other U. S. troops in the Mediterranean Theater of Operations. He graduated from Wayne University College of Medicine, Detroit, in 1911 and entered the service July 15, 1942.

Captain A. Ebner Blatt

The Bronze Star was recently awarded to Capt. A. Ebner Blatt, formerly of Indianapolis. The citation stated that Captain Blatt "distinguished himself by heroic achievement in connection with military operations against the enemy. His coolness in face of danger and his complete disregard for his personal safety while evacuating wounded under enemy fire were in accordance with highest standards of military service." Dr. Blatt graduated from Indiana University School of Medicine, Indianapolis, in 1934 and entered the service Oct. 29, 1942.

Colonel Charles M. Downs

Col. Charles M. Downs, formerly of Indianapolis, was recently awarded the Bronze Star for meritorious achievement in connection with military operations. The citation states that "during the period of September 30 to October 20 Colonel Downs as surgeon of X Corps planned the movement for and the execution of the successful landing of X Corps medical units on the island of Leyte. During the operations from October 20 to December 20 he coordinated the activities of all medical units under X Corps control, attaining maximum effort. His leadership, superior knowledge, medical ability and untiring efforts contributed greatly to the saving of many lives through

speedy evacuation and effective medical aid." Dr. Downs graduated from Indiana University School of Medicine, Indianapolis, in 1927 and entered the service Aug. 3, 1928.

Major Harold C. Adkins

Major Harold C. Adkins, formerly of Indianapolis, was recently awarded the Presidential Citation for his work during the Normandy invasion. He has been a participant in five major battles, including the invasion of Italy, both invasions of France, the Netherlands and Bastogne. Dr. Adkins graduated from Indiana University School of Medicine, Indianapolis, in 1928 and entered the service April 6, 1942.

MISCELLANEOUS

EPIDEMIOLOGICAL INFORMATION BULLETIN NO. 15

The Epidemiological Information Bulletin No. 15, recently released by the United Nations Relief and Rehabilitation Administration, states that tuberculosis and syphilis are the two most important health problems of liberated Manila.

Based on returns for the first three months of liberation, the death rate for pulmonary tuberculosis for a year has been calculated at 800 per hundred thousand inhabitants, or about twenty times that of the average American city. In ten weeks 2,045 new syphilis cases were found among the civilian population, and the incidence continues to increase. Gonorrhea is equally prevalent. Manila was one of the few cities of tropical Asia where malaria had been reduced to a low level. During the Japanese occupation the disease returned, and it now constitutes a serious problem. There has been no significant increase of other epidemic diseases.

War shattered cities in continental Europe are also suffering from serious epidemics. The mortality from pulmonary tuberculosis has more than doubled in Rome. Epidemics of bacillary dysentery of a severe type and of typhoid are spreading in Berlin, where diphtheria too is once more on the increase. There were 1,100 cases of typhoid during the first three weeks of August. At Helsinki, Finland, there have been 2,472 paratyphoid fever cases up to September 6. Diphtheria remains widespread in the Netherlands, where half of the cases now occur among adults.

The Epidemiological Information Bulletin is issued bimonthly by UNRRA in pursuance of responsibility delegated by the International Sanitary Conventions of 1944 for gathering and publishing official information regarding the incidence of epidemic diseases throughout the world.

UNRRA HEALTH PROGRAM IN CHINA

Dr. Leland A. Powers, former Health Director of the state of Washington and now chief medical officer for the United Nations Relief and Rehabilitation Administration in Chungking, recently reported the activities of the health program in China. Eighteen doctors, sanitary experts and nurses joined the staff in Chungking, a special training program for Chinese experts was completed, a serious cholera epidemic brought under control and action started on requests for speedy recruitment of approximately 200 additional medical persons for field operations.

Dr. Powers is developing the work of the UNRRA health division in cooperation with Dr. Chang Wei, chief medical officer of the Chinese National Relief and Rehabilitation Administration (CNRRA), and Dr. P. Z. King of the Chinese National Health Institute. A medical teaching project to instruct Chinese medical and public health personnel in the necessary technics for relief work got under way in the early summer.

To date over 100,000 pounds of medical supplies has been sent into China for use in the medical programs. The bulk of these vital supplies were shipped while China was still under Japanese occupation, and difficulties of closed ports and roads were cir-

cumvented by shipping the supplies to India and flying them from there "over the hump" of the Himalayas.

As the field work continues to extend into the devastated areas left by the retreating Japs, more medical teachers—general practitioners, nurses, bacteriologists and specialists of every description—are needed and are being recruited to help China launch her extensive medical relief program. It has been roughly estimated that in the next four years China will have to train 35,000 technicians to do the job. UNRRA is attempting to fill present requests from China for 200 medical field workers and has set a recruitment goal of 100 medical men and 30 nurses by the end of this year.

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

California

Birmingham General Hospital, Van Nuys: Surgery of the Biliary Tract, Capt. Howard K. Gray, November 14; Thoracic Surgery, Capt. W. L. Rogers, November 28.

U. S. Regional Hospital, Pasadena: Thyroid Disease, Lieut. Comdr. George Crile, November 12.

A. A. F. Regional Station Hospital, March Field: Compound Fractures, Comdr. P. E. McMaster, November 20.

U. S. Naval Hospital, Long Beach: Liver Disease Capt. John Ruddock, November 21.

Station Hospital, Camp Stoneman, Pittsburg: Plastic Surgery, Dr. George Pierce, November 17.

Hammond General Hospital, Modesto: The Use of Penicillin in Injuries and Infections, Dr. Horace J. McCorkle, November 21.

A. S. F. Regional Hospital, Oakland: Diagnosis and Management of the Lymphomas, Dr. Ernest H. Falconer, November 14.

Station Hospital, Fort Ord: Diseases of the Thyroid: Clinical Diagnosis and Management, Dr. Mayo H. Soley, November 17.

U. S. Naval Hospital Treasure Island: Interpretation and Misinterpretation of Certain Laboratory Tests, Dr. James Hopper, November 16.

Pennsylvania

U. S. Naval Hospital, Philadelphia: Clinical Significance of Diplopia, Dr. Walter I. Lillie, November 16.

QUARANTINE RESTRICTIONS WIDENED ON AIR TRAVEL

Under the jurisdiction of the International Sanitary Convention, quarantine restrictions on air travel were placed on several hundred additional square miles in Brazil and the Barotze province in northern Rhodesia. The restrictions became effective with the acceptance recently by the Standing Technical Committee on Health of a report of the Expert Commission on Quarantine redefining endemic yellow fever areas. The committee, which held its ninth regular meeting September 26 at UNRRA headquarters, also approved the progress report of the Health Division.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Name	Rank	Address	Name	Rank	Address
Alabama			Illinois		
Bass, John B., Major, Bellevue Highlands, Gadsden.			Anderson, Donald W., Capt., 5025 W. Erie St., Chicago.		
Block, William H., Capt., Hartselle.			Bilek, George J., Capt., 2650 S. Homan Ave., Chicago.		
Borah, Charles E., Capt., Professional Bldg., Phoenix.			Blades, James E., Lt. Col., Sydney.		
Edwards, Winston A., Capt., Notasulga.			Brewer, John L., Lt. Col., 2220 E. 70th Place, Chicago.		
Jackson, Thomas S., Capt., Cllo.			Brill, Isidore, 1st. Lt., 121 W. Univ. Ave., Champaign.		
McDowell, James F., Lt. Col., 2801 Ensley Ave., Birmingham.			* Brooks, Clyde M., Major, 915 W. Main St., Carbondale.		
Markheim, Herbert R., Major, Cullman.			Buckner, Ryland A., Capt., 314 North Central, Gilman.		
Mason, James M., III, Major, 2721 Niazuma Ave., Birmingham.			Calams, James A., Capt., 4758 Roscoe St., Chicago.		
Price, Lance C., Major, 401 E. Tuscaloosa St., Florence.			Casciato, Nick A., Capt., 4527 West End Avenue, Chicago.		
Ramey, Daniel R. Jr., Major, Hartselle.			Chechile, Dominic T., Capt., 616 N. Trumbull Ave., Chicago.		
Rosen, Herman L., Capt., 113 Montezuma Rd., Montgomery.			Cohler, Bernard E., 1st Lt., 910 Lawrence Ave., Chicago.		
Simon, Harold E., Major, 3208 Norwood Blvd., Birmingham.			Comer, Fay S., Major, 800 Commercial Ave., Cairo.		
Simpson, Wyatt C., Major, 230 Broad St., Gadsden.			Cutts, Robert L., Capt., 7658 S. Sangamon, Chicago.		
Arkansas			Diamondstone, A. H., Capt., 1139 N. Spaulding Ave., Chicago.		
Bizzell, Ross, Capt., Baptist State Hospital, Little Rock.			Dick, Donald E., Capt., 1018 Elm St., St. Charles.		
Blankfort, Gerald, Major, 2519 N. Filmore St., Little Rock.			Dougherty, Roderick J., Capt., 4347 N. Sawyer Ave., Chicago.		
Hellums, Jufius H., Major, Dumas.			Dowell, Raymond F., Lt. Col., 864 Highland Ave., Elgin.		
Kittrell, James B., Capt., 1103 Hickory St., Texarkana.			Droegemueller, William H., Major, 116 Burnham Pl., Evanston.		
Martindale, James G., Major, 614 West Ave., B. Hope.			Fantus, Robert A., Capt., Cook County Hosp., Chicago.		
Williams, Carl R., Capt., 307 First Natl. Bank Bldg., Morrilton.			Feldman, Abraham W., Capt., 3404 W. Catalpa Ave., Chicago.		
California			Fey, David W., Lt. Col., 603 Moss Ave., Peoria.		
Antipa, August A., 1st Lt., 1916 16th Ave., San Francisco.			Foltz, Eliot E., Capt., 118 W. Oak St., Chicago.		
Carnazzo, William A., Major, 411 Alvarado St., Monterey.			Fonvielle, William B., Capt., 216 S. Main St., Rockford.		
Carter, Kenneth L., 1st Lt., 2179 7th Ave., Sacramento.			Freedman, Morton J., Major, 331 Fulton, Peoria.		
Carter, Norman K., Major, 1733½ Siebel, Apt. 3, Los Angeles.			Garwacki, John H., Capt., 5613 S. Albany Ave., Chicago.		
Cherney, Leonid S., Major, 1701 Vallejo Street, San Francisco.			Gast, Carl L., Major, 1650 N. Matona Ave., Chicago.		
Collins, Donald C., Lt. Col., 9313 Olympic Blvd., Beverly Hills.			Gench, Raymond L., Major, 611 S. 6th St., Springfield.		
Colman, Maurice, Major, 490 Post St., San Francisco.			Gerber, Harold X., Major, 932 Ainslie St., Chicago.		
Congdon, Gordon H., Capt., 817 2nd St., Santa Rosa.			Giardina, Jacob J., Major, 5946 W. Chicago Ave., Chicago.		
Donohoe, Edward C., Lt. Col., 429 N. Orange St., Glendale.			Goodman, Clifford S., Capt., 612 Patterson, Chicago.		
Downey, Vincent M., Major, 1916 Chester Ave., Bakersfield.			Gordon, Orville E., Major., 2649 Carmen Ave., Chicago.		
Fiske, Leigh G., Capt., 22 W. Micheltorena St., Santa Barbara.			Gray, J. Gilbert, Capt., 1263 Pratt Blvd., Chicago.		
Fonda, Maxwell P., 1st Lt., 144 South Ave., Los Angeles.			Gray, John W., Capt., 321 Anderson Blvd., Geneva.		
Geiger, James M., Capt., 50 Ventura Ave., San Francisco.			Grinker, Roy R., Lt. Col., 30 N. Michigan Ave., Chicago.		
Glukfeld, Jerome P., Major, 516 Sutter St., San Francisco.			Haskins, Jack T., Capt., 510 S. Douglas Ave., Belleville.		
Harmon, Ellis D., Lt. Col., 5745 Geary Blvd., San Francisco.			Helm, John E., Major, 309 W. Church St., Benton.		
Harrison, William J., Major, 1339 Post Ave., Torrance.			Hoffman, Samuel J., Lt. Col., 3800 Lake Shore Drive, Chicago.		
Hathfield, Howard L., Major, 873 N. Holliston Ave., Pasadena.			Hutchison, William A., Major, 5002 N. Winchester, Chicago.		
Helbing, Franklin K., Major, 34 N. Ash St., Ventura.			Iler, Rex L., Capt., St. Anne.		
Heller, Harold, Major, Route 3, 952, San Jose.			Illyes, David F., Capt., Marshall.		
Henriksen, Erle, Major, 523 W. 6th St., Los Angeles.			Jasinski, Thaddeus J., Major, 2241 S. Marshall Blvd., Chicago.		
Herbert, Wesley R., Capt., 4193 Adams Ave., San Diego.			Kapustiak, Wendell A., Capt., 1845 W. 54th St., Chicago.		
Herzog, George K., Jr., Capt., 8 Jordan Ave., San Francisco.			Kesert, Meyer, Capt., 842 Gunnison Ave., Chicago.		
Hesser, Robert N., Capt., Morro Bay.			Leimbacher, Earl S., Major, 812 Western Ave., Joliet.		
Howard, Harry P., Capt., 1905 Laguna St., San Francisco.			Lerner, Philip, Major, 1506 S. Kildare Ave., Chicago.		
Humphreys, Patrick C., Capt., 511 S. Bonnie Brae, Los Angeles.			Levenson, Joseph M., Capt., 1856 W. 63 St., Chicago.		
Isaak-Jantzen, C. J., 1st Lt., Gen. Hosp. of Fresno Co., Fresno.			Levy, Norman A., Major, 30 N. Michigan Ave., Chicago.		
Jenkins, Kenneth B., Capt., 209 Pacific Ave., Piedmont.			Leyers, Rudolph Peter, Capt., 3259 W. 66th Pl., Chicago.		
Johnson, Alf C., Lt. Col., 1611 Thousands Oaks Blvd., Berkeley.			Lisse, Reuben R., Capt., 9957 Oakley Ave., Chicago.		
Judge, William D., Major, 669 S. Union Ave., Los Angeles.			Lueth, Harold C., Lt. Col., 822 Lincoln St., Evanston.		
Kanner, H. M., Major, B. 1032 Rt. 9, Sierra Oaks, Sacramento.			Lundy, Clayton J., Major, 122 S. Michigan Ave., Chicago.		
Key, Jules M., Capt., 91 Palm Ave., San Francisco.			McGinnis, William S., Capt., 719 Riverview Drive, Alton.		
Kinyoun, Floyd H., Lt. Col., 6253 Hollywood Blvd., Hollywood.			McNeely, Geo. B., Capt., Stanford.		
Kremers, Marshall Y., Capt., 180 S. Lake Ave., Pasadena.			Meltzer, Herman L., Lt. Col., 800 North Side Sq., Clinton.		
Kreutzmann, Walter B., Capt., 123 Alhambra St., San Francisco.			Montgomery, Robert B., Major, 205 W. Iowa St., Urbana.		
Lamb, Philip V., Capt., Angels Camp.			Murphy, Thomas J., Major, 768 Citizens Bldg., Decatur.		
Levine, Max A., Capt., 5700 Spring Oak Dr., Los Angeles.			Oltman, Diedrich L., Major, R.R. 1, Box 352, E. Moline.		
Liston, Edward, Major, 1300 Hamilton Ave., Palo Alto.			Quandt, Eberhardt H., Major, 303 N. Main St., Rockford.		
Lomas, Woodrow E., 1st Lt., 1246 Ferrello Rd., Santa Barbara.			Rosi, Peter A., Lt. Col., 928 Winona Ave., Chicago.		
McMilan, Keith D., Capt., 4816 Fountain Ave., Los Angeles.			Ross, Philip H., Capt., 455 Barry Ave., Chicago.		
Marco, Joseph D., Capt., 2231 W. Silverlake Dr., Los Angeles.			Rutherford, Robert B., Col., 207 Maplewood Ave., Peoria.		
Melone, Frank C., Capt., 548 Harvard Pl., Ontario.			Scott, Thomas C., Capt., 112 Cedar St., Lexington.		
Meyer, Emerson L., Capt., 343A West St., Healdsburg.			Shapiro, Samuel, Capt., 4926 N. Avers Ave., Chicago.		
Moran, Frank A., Major, 1137 Stanford, Santa Monica.			Shaw, Maurice M., Major, 528 E. 34th St., Chicago.		
Peck, Roy T., Capt., 830 "I" St., Merced.			Sheldon, William H., Major, 5553 S. Dakota Ave., Chicago.		
Porter, Clarence G., Lt. Col., 478 Flood Bldg., San Francisco.			Sneider, Milton J., Capt., 5050 N. Sheridan Rd., Chicago.		
Priver, M., Major, 1106 S. Westmoreland Ave., Los Angeles.			Spinka, Isadore, Capt., 1239 N. Campbell Ave., Chicago.		
Quinn, William J., Major, 1606 Newcomb Ave., San Francisco.			Stackhouse, Stirling P., Capt., 808 N. Galena Ave., Dixon.		
Rijhoff, Victor E., Capt., 823 Flood Bldg., San Francisco.			Starr, Merritt P., Lt. Col., 8 S. Michigan Ave., Chicago.		
Rolph, Ronald J., Capt., 83 Elliot Ave., Santa Rosa.			Steinitz, Franz S., Capt., 5651 N. Drake Ave., Chicago.		
Russell, Lum E., Capt., Box 205, Eldridge.			Strich, Arthur J., 1st Lt., 30 N. Michigan Ave., Chicago.		
Scholtz, Julius R., Lt. Col., 1725 Bedford Rd., San Marino.			Suttie, Grant, Capt., 631 Lucinda Ave., DeKalb.		
Siebeck, Karl L. Jr., Capt., 405 W. Adams Blvd., Los Angeles.			Tauber, Sydney W., 1st Lt., 116 S. Kostner Ave., Chicago.		
Simmons, Hugh M., Capt., P.O. Box 501, Lafayette.			Thornburg, William M., Capt., 14 W. Main, DuQuoin.		
Steinbach, Howard L., 1st Lt., L. A. Co. Hosp., Los Angeles.			Vanlandingham, Homer W., Major, 812 Talcott Bldg., Rockford.		
Young, Richard A., Capt., 38 Highland Ave., Piedmont.			Welsh, Raphael J., Major, 5306 Greenwood Ave., Chicago.		
			Whitmer, Ralph G., Major, 230 N. Oak Park Ave., Oak Park.		
			Wolters, Simon L., Capt., 5841 Maryland Ave., Chicago.		

PHYSICIANS SEPARATED FROM SERVICE

Name	Rank	Address	Name	Rank	Address
Maine			Nevada		
Anderson, Karl V., Capt., Derby.			McCarty, William J., Lt. Col., Yerington.		
Bull, Frank B., Major, 92 Dresden Ave., Gardiner.			Palmer, John E., Capt., 425 Elm St., Reno.		
Casey, William L., Lt. Col., Portland.			Roche, Alan J., Major, Sparks.		
Cobb, Stephen A., Lt. Col., 23 Lebanon St., Sanford.			Ross, Theodore V., Major, Ely.		
Smith, John E., Major, 156 State St., Bangor.					
Toussaint, Leonide G., Capt., 13 Pleasant St., Ft. Kent.					
Weymouth, Raymond E., Capt., 194 Main St., Bar Harbor.					
Massachusetts			New York		
Botsford, Thomas W., Major, 721 Huntington Ave., Boston.			Abrams, Harry H., 1st Lt., 80 E. Chester St., Long Beach.		
Briere, Arnold C., Capt., 25 Franklin St., Lynn.			Amster, Milton W., Major, 395 Ocean Ave., Brooklyn.		
Broderick, Hugh F., Capt., 11 Ocean St., Lynn.			Anderson, Russell E., Capt., 17 Bassett St., Jamestown.		
Burke, Jacob B., Major, 182 Washington Ave., Chelsea.			Aronson, Shepard G., Capt., 1601 Beverly Rd., Brooklyn.		
Cogan, Michael A., Capt., 212 Chestnut St., Springfield.			Bachrach, Louis, 1st Lt., 33 S. Oxford St., Brooklyn.		
Curran, Timothy L., Capt., 2143 Dorchester Ave., Dorchester.			Bennett, David W., Capt., 601 Waldorf Pky., Syracuse.		
Faxon, Henry H., Major, 309 Warren St., Brookline.			Bergmann, J. W., Capt., 405 E. Cedar St., Poughkeepsie.		
Goglia, Alfred A., Capt., 66 Broadway, Taunton.			Bladen, George, Major, 139 Wood Ave., Syracuse.		
Gordon, Sydney R., Capt., 208 Highland St., Worcester.			Bloom, David, Capt., 345 E. 77th St., New York City.		
Grabfield, Gustave P., Col., 319 Longwood Ave., Boston.			Blumber, Ralph, Capt., 3622 Avenue M, Brooklyn 10.		
Haight, Meyer H., Major, Main St., W. Warren.			Booke, Solomon G., Capt., 2 Butler Ave., Buffalo.		
Hunter, John J., 1st Lt., Cambridge Hosp., Cambridge.			Borsuk, Harry, Capt., 103-56 97th St., Ozone Park.		
Klainer, Max J., Capt., 75 William, Stoneham.			Bove, Emil J., Major, 46 State St., Seneca Falls.		
Lappin, Matthew J., 1st Lt., 316a Shawmut Ave., Boston.			Breed, Floyd M., Capt., 156 N. Broad St., Norwich.		
Loughran, Fred J., Lt. Col., 455 High St., Lowell.			Brown, Frederick R., Capt., 14 Earl St., Floral Park.		
Medalia, Leon S., Lt. Col., 78 Bay State Rd., Boston.			Carucci, Gabriel, Capt., 683 Hart St., Brooklyn.		
Payne, Edward A., Capt., 26 Salem St., Woburn.			Casey, Francis G., Jr., Capt., 497 13th St., Brooklyn.		
Plass, Herbert F. R., Capt., 2 Ravenscroft Rd., Winchester.			Cassell, Max, Major, 1659 E. 24th St., Brooklyn.		
Risman, Joseph, Major, 479 Western Ave., Lynn.			Cassella, Peter A., Capt., 863 Nott St., Schenectady.		
Sarlo, Vincent M., Capt., 1650 Acushnet Ave., New Bedford.			Colburn, Russel F., Lt. Col., Syracuse Mem. Hosp., Syracuse.		
Scola, Joseph A., Capt., 508 Salisbury St., Worcester.			Conan, Mark E., Lt. Col., 218 W. Beard Ave., Syracuse.		
Simpson, Howard N., Major, 59 Elm St., Woburn.			Cooke, John A., Jr., Capt., 375 Broadway, Monticello.		
Stone, Knowlton D., Major, 23 Orchard St., Greenfield.			Cooper, William, Major, 880 Manhattan Ave., Brooklyn.		
Tomb, Everett H., Major, 46 Lexington St., Framingham.			Cooper William A., Lt. Col., 445 E. 65th St., New York.		
Vohr, Dorothy L., Capt., 28 Park St., Lee.			Cracovaner, Arthur J., Lt. Col., 302 W. 86th St., New York.		
Weiss, William G., 1st Lt., 2 Kensington St., Andover.			Crater, Robert L., Capt., 188 W. 135th St., New York City.		
Wilkins, George F., Major, 127 High St., Brookline.			Davidson, Morton L., Capt., 465 W. End Ave., New York City.		
			Demeo, Raphael R., Capt., 8317 Seventh Ave., Brooklyn.		
			Diamond, Daniel, Capt., 335 S. Fifth St., Brooklyn.		
			Dickman, Max, Capt., 201 Ave. P., Brooklyn.		
			DiGangi, Marion R., Major, 113 Ave. V., Brooklyn.		
			Dorsey, Philip W., Capt., 533 E. 149th St., New York City.		
			Dunlap, Harold J., Lt. Col., 485 Pelham Rd., New Rochelle.		
			Elton, Norman W., Lt. Col., 875 Lafayette Ave., Buffalo.		
			Epstein, Harry, Capt., 190 E. Moshulu P'kway, New York City.		
			Ersler, Irving, Lt. Col., 6 Riverside Dr., Binghamton.		
			Eschner, Edward G., Lt. Col., 3764 Seneca St., Ebenezer.		
			Evans, Franklin J., Capt., 451 Clarkson Ave., Brooklyn.		
			Faulkner, Roland L., Capt., 1516 Union St., Schenectady.		
			Fingar, Victor J., Capt., Brasher Falls.		
			Fisher, Robert C., Capt., 53-02 32nd Ave., Woodside, L. I.		
			Flewelling, Herbert E., Lt. Col., Methodist Hosp., Brooklyn.		
			Friedman, Robert L., Capt., 1218 Avenue V., Brooklyn.		
			Frumkin, Jacob, Major, 841 DeCamp Ave., Schenectady.		
			Fuge, Wilfred W., Col., 135 Lincoln Ave., Buffalo.		
			Gersh, Irving, Capt., 1225 White Plains Rd., Bronx.		
			Giuffre, Joseph, Capt., 2551 Hoffman Ave., Bronx.		
			Glasser, Daniel, Capt., 150 Lefferts Ave., Brooklyn.		
			Goldberg, Joseph D., Capt., 801 W. End Ave., New York.		
			Goodrich, Frederick W., Capt., 313 Main St., Catskill.		
			Governale, Vincent J., Lt. Col., 53 E. Penn St., Long Beach.		
			Greenberg, Bernard, Capt., 2067 61st St., Brooklyn.		
			Grossfeld, Seymour S., 1st Lt., 76 Canal St., New York City.		
			Gurney, Ramsdell, Major, 31 Ashland Ave., Buffalo.		
			Haber, Jack L., 1st Lt., 30 Dongan Bl., New York.		
			Hammerling, James S., 1st Lt., 160 W. 95th St., N. Y. C.		
			Hanlon, Lawrence W., Major, Odessa.		
			Harrington, John H., Capt., 40 East Main St., Rockaway.		
			Hebert, Julien A., Capt., 57 North Pine Ave., Albany.		
			Hecht, Emanuel B., 1st Lt., 80 West 169th St., Bronx.		
			Heller, Bernard I., Major, 620 Montgomery St., Brooklyn.		
			Heller, David, Capt., 1579 Sterling Pl., Brooklyn.		
			Hertz, Carl, Capt., 28 Hamlin Rd., Buffalo.		
			Hoople, Gordon D., Major, 801 Westmoreland Ave., Syracuse.		
			Howd, Helmer P., Major, 1825 7th Ave., Troy.		
			Hunt, Robert W., Major., 111 E. 71st St., New York City.		
			Jacobs, Lewis, Capt., 9 Ponfield Pkwy., Mt. Vernon.		
			Jaeger, Jacob O. S., Capt., 2855 Grand Concourse, Bronx.		
			Jeruss, Edward G., Capt., 80-59 Surrey Rd., Jamaica, L. I.		
			Kahn, Sigmund S., Capt., 712 Beverly Road, Brooklyn.		
			Kantor, George J., Lt. Col., 56 Sheridan Ave., Brooklyn.		
			Karelitz, Samuel, Lt. Col., 145 East 92d St., New York City.		
			Kaplan, Theodore, Capt., 1049 Park Ave., New York City.		
Minnesota			Mississippi		
Anderson, Edward M., Major, Lamberton.			Eimer, Charles E., Major, 4 Willow Rd., Clayton.		
Beare, John B., Capt., 512 4th St., S.W., Rochester.			Goodman, Henry B., Capt., Anguilla.		
Berghs, Lyle V., Capt., 505 E. Main St., Owatonna.			Kazar, Jay Justin, Capt., Tchula.		
Cavanor, Frank T., Col., 3538 Garfield Ave., S. Minneapolis.			Pigford, Malcolm L., Major, 1010 8th Ave., Laurel.		
Cowan, George M., Major, 819 E. 2d St., Duluth.			Ringold, Oscar E., Capt., Cleveland.		
Crowley, Daniel F. Jr., Major, % Mayo Clinic, Rochester.			Sandifer, Fred Monroe Jr., Capt., 110 E. Market, Greenwood.		
Cundy, Donald T., Capt., 2923 4th Ave., E. Hibbing.			Saunders, Joseph H., Capt., Box 365, Laurel.		
Graves, James H., Major, Ancker Hosp., St. Paul.			Simmons, W. H. Jr., Capt., 215 Standard Life Bldg., Jackson.		
Hallock, Phillip, Major, 3250 Garfield Ave., S. Minneapolis.			Young, John J., Capt., Apt. 10, 21st & Hardy St., Hattiesburg.		
Hart, William E., Major, Monticello.					
Haserick, John R., 1st Lt., 212 Walnut St., W.E. Minneapolis.					
Hilger, Jerome A., Major, 441 Lowry Bldg., St. Paul.					
Holt, George W., Lt. Col., 218 Main St., W. Wabasha.					
Jump, Walter C., Major, Kasson.					
Kulzer, Norbert J., Capt., 10th & Eddy Sts., Hastings.					
Leitschuh, Linus F., Capt., Sleepy Eye.					
Mulmed, E. I., Major, Mayo Fdn., 102 2d Ave. S.W., Rochester.					
Peterson, Donald H., Capt., 1756 Grand Ave., Apt. 9, St. Paul.					
Pleissner, Karl W., Capt., 1901 Chicago Ave., Minneapolis.					
Sexton, Thomas S., Major, 1326½ 2nd St., S.E. Rochester.					
Strem, Edward L., Capt., Minn. Gen. Hosp., Minneapolis.					
Wolf, William W., 1st Lt., 5633 10th Ave. S., Minneapolis.					
Montana			Mississippi		
Cannon, Porter S., Capt., Conrad.					
Knese, Luke A., Lt. Col., 715 N. 29th St., Billings.					
McPhail, Francis L., Capt., 2520 Second Ave. S., Great Falls.					
Paul, Francis W., Capt., Box 177, Big Timber.					
Raitt, Grant P., Capt., Clyde Park.					
Twiggs, Leo F., Capt., 1021 Division St., Billings.					
Vaiko, John R., Lt. Col., 501 1st Ave., N. Great Falls.					

PHYSICIANS SEPARATED FROM SERVICE

Name	Rank	Address	Name	Rank	Address
North Dakota			Oregon		
Devigne, John L., Jr., Lt. Col., 17 A Central Ave., West, Minot.			Bailey, Paul, Major, 1515 S. W., Myrtle, Portland.		
Flannery, Hubert P., Major, Jamestown.			Boyd, Allen M., Major, 765 Jerome Ave., Astoria.		
Graham, Charles M., Capt., Grand Forks.			Dawson, Jack W., Capt., 410 Medical Arts Bldg., Portland.		
Gumpert, Arnold J., Capt., Dickinson.			Powell, Frank E., Lt. Col., 259 12th St., Astoria.		
Hoskins, James H., Major, 616 N. 6th St., Wahpeton.			Garber, Joseph H., Major, U. S. Veterans Hosp., Portland.		
Keller, Emil T., Major, Rugby.			Kessler, Raymond L., Major, Box A, Pendleton.		
Lapson, Herbert J., Major, Grafton State School, Grafton.			Peters, Al., Capt., 2055 S. W. Park Ave., Portland.		
Mahowald, Ralph E., Major, 104 Benton Ave., Grand Forks.					
Mattison, Robert E., Capt., 20 4th Ave. S.W., Minot.			Rhode Island		
Shatto, Paul B., Capt., 403 Div Ave., Grand Forks.			Miller, Wmmon, Major, 260 Olney St., Providence.		
Vinje, Ralph, Capt., Blandah.			Koenig, Emil J., Jr., Capt., R. L. Hospital, Providence.		
Ohio			South Dakota		
Adams, Archibald M., 1st Lt., Burr Hotel, Lbra.			Loyce, Stanton C., Major, Humbolt.		
Benson, Harold G., Major, 230 N. Market St., Wooster.			Owen, Gordon S., Capt., Security Bldg., Rapid City.		
Benedetto, Eugene R., Capt., 847 East Grant St., Alliance.			Tennessee		
Bly, Frank H., Major, 589 Avalon Ave., Akron.			Beaz, Alvin H., Major, 417 W. Brow Rd., Lookout Mt.		
Bout, Floyd D., Capt., 30 S. Mulberry St., Mansfield.			Butter, Turkey, Capt., Baptist Hosp., Memphis.		
Calland, William R., Major, 135-24th St., N.W., Barbenton.			Johnson, Charles C., Capt., Pressman's Home.		
Carter, Burr H., Col., Cincinnati G.H., Cincinnati.			Olson, John R., Capt., B-2 Jefferson Apts., Nashville.		
Carter, William H., Major, 1309 E. Main St., Raymore.			Pepper, Mamie L., Major, 1029 Stonewall, Memphis.		
Caton, Russell J., Col., 406 S. Sandusky Ave., Bucyrus.			Shields, Lester B., Capt., Benton.		
Challen, Harry E., Major, 522 E. Elmer St., Cleard.			Von Canon, O. L., Major, Pied Piper Trail, Lookout Mountain.		
DeShley, Charles J., Major, 364 Elm Ave., Columbus.			Willhelm, Walter L., Major, 227 W. Du. Hein Park, Memphis.		
DeMaier, Phillip B., Capt., 1165 Delta Ave., Akron.			Utah		
De Meter, Steven R., Major, 9206 Anderson Ave., Cleveland.			Coyington, Ben H., Capt., Orderville.		
Dout, Hugh C., Capt., 451 Glenview Ave., Columbus.			Fuklin, George C., Capt., P. O. Box 432, Tremonton.		
Dowling, John S., Major, Akron City Hosp., Akron.			Gordish, William M., Capt., Castle Lake.		
Dworkin, Harry, Capt., 3547 Maple Ave., Cincinnati.			Gross, Norman H., Capt., Vet. Hosp., Salt Lake City.		
Emmett, John T., Major, 130 Columbus St., Plym.			Monran, Sherman McK., Capt., 4420 S. State St., Murray.		
Francis, Carl C., Lt. Col., 2109 Adelbert Rd., Cleveland.			Noyes, Kenneth E., Capt., 87 E. Main St., American Fork.		
Fidellin, Gaylord D., Major, 212 Champlain Ave., Ashland.			Vermont		
Gammestras, Nicholas J., Major, 591 McAlpin Ave., Cincinnati.			Collins, Ray W. Jr., Major, Colchester.		
Gibbons, John T., Major, 112 E. Payette St., Colma.			Crowley, Joseph B., Capt., 114 Main St., Brattleboro.		
Ginn, Guy A., Capt., 703 S. Wittenberg Ave., Springfield.			Hartwood, C. W., Capt., Mary Fletcher Hosp., Burlington.		
Goffe, Francis V., Capt., 516 Evergreen Ave., Dayton.			Knapley, Joyce W. Jr., Capt., 130 Loomis St., Burlington.		
Gustafson, Milton H., Capt., 10126 I. Holly Ave., Cleveland.			Mahoney, James P., Major, 288 Maple St., Burlington.		
Hardesty, H. H., Capt., St. Vincent's Charity Hosp., Cleveland.			Olson, Carleton B., 1st Lt., Waterbury.		
Hartford, James R., Capt., 301 W. Fifth St., E. Liverpool.			Twiss, Harry Y., Capt., 24 College St., Montpelier.		
Hartford, Arvine W., Capt., 31 Jefferson St., Titum.			Virginia		
Hawke, Otto L., Capt., 15275 Brewster Road, E. Cleveland.			Dow, Charles H., Major, Chathamville.		
Hearle, Charles C., Capt., Colma.			Dwyer, Samuel P., Capt., P.O. Box 95, Frontville.		
Heywood, Howard W., Capt., Cincinnati G.H., Cincinnati.			Farb, Alexander M., Jr., Capt., Sanborn.		
Hill, Frank R., Capt., 2828 Coleridge Rd., Cleveland Heights.			Fausworth, D. L., Capt., Dep. Asst. Med. Coll., Va., Richmond.		
Holmes, Robert E., Major, 2095 Adelbert Rd., Cleveland.			Haden, Paul J., Lt. Col., One Bank.		
Horowitz, Martin M., Capt., 650 Carpenter St., Columbus.			Hackath, Percy C., Capt., 433 W. Main St., Covington.		
Kasper, E. C., Capt., 16215 Invermere Rd., Cleveland.			Kaufman, William H., Capt., 1331 Univ. Circle, Charlottesville.		
Katzman, Walter R., Capt., 3545 Lytle Rd., Shaker Heights.			Knecht, Chimer D., Capt., 515 Union St., Wytheville.		
Kemp, H. A., Lt. Col., Dean School of Med., Ohio State Univ.			Moore, Randolph T., Jr., Major, 318 W. 4th St., Winchester.		
Kerry, Henri A., Capt., 230 S. Cherry St., Canton.			Turman, Grant R., Jr., 1st Lt., 395 N. Boulevard, Richmond.		
Kirby, Paul P., Major, 506 S. Powell Ave., Columbus.			Williams, Harry P., Capt., 900 W. Layette St., Martinsville.		
Kramer, John A., Capt., 310 N. Main St., Ada.			White, Harry P., Lt. Col., Fisherville.		
Lacy, George W., Jr., Capt., 2224 Bellfield Rd., Cleveland.			Wisconsin		
Lamp, Henry A., 1st Lt., 163 Chestnut St., Hamilton.			Brewer, Gordon W., Capt., 493 E. Capitol Drive, Hartland.		
Larshere, Alfred, Capt., 203 E. Mitchell Ave., Cincinnati.			Callan, Robert L., Capt., 6501 W. Wisconsin Ave., Wauwatosa.		
McCormick, Paul R., Major, Ravine Drive, Youngstown.			Cornick, William P., Capt., 1995 Lamont St., Wausau.		
McConnell, C. T., Capt., 1330 Highland Rd., Cuyahoga Falls.			Kelly, William J., Capt., The Hilltop, Potomac.		
Martin, John P., Major, 99 South Roosevelt Ave., Columbus.			Lagley, Walter P., Capt., 1303 W. Johnson St., Madison.		
McHimp, Richard L., Lt. Col., 393 Bryden Rd., Columbus.			Marston, Russell C., Capt., 23 E. Johnson, Madison.		
Mitchell, James D., 1st Lt., 1134 Chittenden Ave., Columbus.			Miller, Sidney J., Major, 536 W. Wisconsin Ave., Milwaukee.		
Ramen, J. M., Major, 2137 Humphreys Rd., Cleveland Heights.			Shaw, George H., Major, 1628 Holmes Ave., Racine.		
Patterson, Owen E., Major, Holmesville.			Winslow, Litz P., Capt., 1102 Ash St., Benadon.		
Peabody, Carroll A., Capt., 3571 Avalon Rd., Shaker Heights.			Zutick, Sylvester S., Lt. Col., 1675 S. 5th St., Milwaukee.		
Pedley, Thomas A., Major, 244 E. 4th Ave., Lorain.			West Virginia		
Peterson, Guy S., Jr., Capt., 1017 Federal Ave., Cleveland.			Bond, Dewitt T., Capt., Ambleside.		
Potter, Floyd A., Major, 1249 W. 12th St., Toledo.			Bickel, Carl S., Major, P.O. Box 670, Wheeling.		
Pritchett, Clark P., Major, 463 E. Town St., Columbus.			Davis, William W., Major, Beckley Hosp., Beckley.		
Prochaska, Charles J., Lt. Col., 4124 Mayfield Rd., S. Union.			Goodwin, Franklin H., Major, Riverside Dr., Welch.		
Reber, John A., Capt., 212 Summit Ave., Ashland.			Henderson, Oliver M., Major, 1 Chambers Ave., Elm Grove.		
Rosoff, Maurice B., Capt., 1202 Ryden Road, Columbus.			McCuskey, Everett W., Lt. Col., Rainelle.		
Ryan, James E., Major, Kelley Island.			Wall, James H., Capt., 5050 Kanawha Ave., Charleston.		
Sadovsky, Marvin C., Capt., Mt. Sinai Hosp., Cleveland.			Wyoming		
Smith, Blinn P., Capt., Cleveland.			Bump, Robert T., Capt., 308 309 Hynds Bldg., Cheyenne.		
Stokes, Charles R., Major, 230 Francis St., Youngstown.			Holtz, Paul P., Col., Box 3, 1 under.		
Snyder, Mitchell A., Capt., R. R. 1, Plain City.			Mitch, Paul T., 1st Lt., Canton Hotel Bldg., Laramie.		
Tophick, John A., Capt., 2331 Chaucer Rd., University Heights.					
Watson, George B., Capt., 421 Richards Rd., Columbus.					
Willinson, Herman P., Lt. Col., 205 Marsh Bldg., Van Wert.					
Williams, Harold L., Capt., Fairbury.					
Wutz, Robert P., Capt., 1230 11th St. N.W., Canton.					
Zeno, Ross R., Capt., 1110 W. Psychup St., Akron.					

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion. The Report of the Secretary, additional sections of the Report of the Board of Trustees and reports of some councils, bureaus and departments will appear in subsequent issues of The Journal.—Ed.

(Continued from page 561)

REPORT OF THE COUNCIL ON MEDICAL SERVICE AND PUBLIC RELATIONS

To the Members of the House of Delegates of the American Medical Association

Immediately after the final session of the House of Delegates in June 1944 the Council on Medical Service and Public Relations met to organize

Dr. John H. Fitzgibbon was elected chairman, Dr. E. J. McCormick vice chairman, and an executive committee was appointed consisting of the chairman, Dr. Fitzgibbon, the Trustee member, Dr. L. H. Bauer, and Dr. Alfred W. Adson. Following the resignation of Dr. Fitzgibbon as chairman, Dr. McCormick was elected chairman and Dr. James R. McVay vice chairman and member of the executive committee of the Council at its June 1945 meeting. The Washington office of the Council was established Sept. 1, 1944.

RELATIONS WITH OTHER DEPARTMENTS

It was felt that the first task of the Council should be to clarify its relations with the other Councils and Bureaus of the Association. Consequently a statement was drawn up covering this matter and submitted to the Board of Trustees the day following adjournment of the House of Delegates. The Board approved this statement, which follows:

Under the duties of the Council as laid down in the By Laws there are six definite fields which are somewhat interlocking:

1 To make available facts, data and medical opinions with respect to timely and adequate rendition of medical care to the American people.

This will require the services of the Bureau of Medical Economics in assembling statistical material in making surveys and in preparing analyses of medical care plans for the Council's study. It will require the services of the Bureau of Legal Medicine and Legislation in preparing factual analyses of any legislative angles and it will require the services of the Department of Public Relations in spreading the information through the publications of the American Medical Association. The Council may also effect distribution of some of the information through its bulletins.

2 To inform constituent associations and component societies of proposed changes affecting medical care in the nation.

This, of course, concerns legislation. It should be one of the functions of the Washington office. The information assembled by the Washington office, and other sources of information, should be transmitted to the states and by them to the counties unless the states have requested that the counties be notified direct. Under the plan proposed by the Council and approved by the representatives of those states sending representatives to conferences already held, there should preferably be one man designated by the state who will serve as the contact agent of that state with the Washington office. The information should be sent to the contact agent whose duty it will be to distribute this information as directed by his own state. In cases in which the proposed bill alone is to be sent, it may be sent direct from the Washington office, with copies going to the Council office in Chicago and to the other association bureaus and departments concerned in the Chicago headquarters with request for advice from the department concerned. In case a factual analysis is to be made, this will be done in collaboration by the Washington director and the Director of the Bureau of Legal Medicine and Legislation, by mail when time permits and when it does not by telephone. The same will apply when the implications of the bill are to be included.

3 To inform constituent associations and component societies regarding the activities of the Council.

This will be done by means of the Council's bulletins and with the cooperation of the Department of Public Relations by means of the Association's publications.

4 To investigate matters pertaining to the economic, social and similar aspects of medical care for all the people.

This will involve both the methods covered in 1 and 2 as there will be required both economic investigations by the Bureau of Medical Eco-

nomics and the legislative aspects of the matter concerned by the Bureau of Legal Medicine and Legislation. The information received from the Bureau of Medical Economics from the Washington office and a legislative analysis of the same by the Bureau of Legal Medicine and Legislation would be compiled in the Chicago office for submission to the Council for its study.

5 To study and suggest means for the distribution of medical service to the public consistent with the principles adopted by the House of Delegates.

Based on the results of the first four activities, the Council will prepare its recommendations for the approval of the Board of Trustees or, in case new principles are involved, for submission to the next session of the House of Delegates.

6 To develop and assist committees on medical service and public relations originating within the constituent associations and component societies of the American Medical Association.

To do this a field agent is necessary. Many of the representatives attending the conferences on June 11 and the meeting of the House of Delegates expressed their desire for an arrangement whereby conferences could be held with state representatives. It was also recommended in the Supplementary Report of the Council. The idea of the Council is that this field agent should spend some time in Chicago familiarizing himself with all the activities of the Council and should keep in frequent touch with the Chicago office thereafter. However, he should act as a direct contact between the Washington office and the state agents mentioned. Under the direction of the Washington director and with the approval of the Council, invitations would be issued to groups of states to attend conferences in central areas. The states would be asked to send their contact agents and such others as they see fit to these conferences. The states would be asked to effect an organization within the state so that quick action could be had in emergencies in bringing to the attention of members of Congress the attitude of the medical profession on certain bills. The contact with the congressmen would be by these local units. The field agent would outline the plan to them and offer such assistance as the states desired. Contacts could be kept up then by correspondence with the state agents and only occasional personal contacts thereafter.

The Washington director would be responsible for obtaining information on legislative or government departmental matters and transmitting it to the proper persons as outlined. He would have available all information possible on Association activities for the benefit of Congress and the government departments. He would see to it that both were informed that such a source of information was available for their use when desired. He would discuss bills with members of Congress when requested to do so by them or furnish them such information as requested by the congressman's constituents. He would never exert any pressure on any member of Congress in an effort to influence his vote.

The director would develop sources of information gradually, and the Department of Public Relations would furnish him promptly with all information of a legislative nature which comes to it. The director would likewise keep the Department of Public Relations informed.

A part time legal counsel was recommended in the Council's Supplementary Report. The purpose of this counsel would be to give advice on the meaning of legal phraseology of bills and their legal implications, and the relationship of this bill to other legislation. For the present, at least, it would appear that this could be done by the Bureau of Legal Medicine and Legislation although, in emergencies, some one on the ground would be essential.

There should also be a secretary to the director who should be a college graduate with secretarial training. A stenographer would also be necessary.

The director would function under the supervision of the Council or its executive committee.

SECRETARY

As Dr. G. Lombard Kelly's resignation took effect on July 1, 1944, the Council was without a secretary. Mr. J. W. Holloway, Jr. was designated as acting secretary, which position he filled to the great satisfaction of the Council, although the work of the Council was seriously handicapped since Mr. Holloway, because of other duties, could devote only part of his time to the Council. In February 1945 arrangements were made with the Indiana State Medical Association for the loan of Mr. Thomas A. Hendricks on a part time basis.

BULLETINS, NEWS LETTER AND COUNCIL RELEASES

During the last few months three types of bulletins have been released under the direction of the Council:

News Letter.—The News Letter is sent to about 2,200 physicians who are state medical society officers and members of local public relations committees, to the members of the House of Delegates and to the officers of the American Medical Association. These letters are designed to serve the busy doctor as a periodic "briefing" on developments on the medical economic and political front.

Bulletins on Special Subjects.—Special bulletins covering events and reports on subjects not officially dealt with by other bureaus and councils are released by the Council on Medical Service and Public Relations. An example of such bulletins was the release giving a summarized report, with comments on the Fourth Interim Report of the Subcommittee on Labor and Education covering "Health of the Veteran." These bulletins go to 229 state medical society officers and are valuable in supplementing the information which appears in the Organization Section of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Bulletins from Washington Office.—These bulletins are discussed in the report on the Washington Office by Dr. Joseph S. Lawrence, which is a part of this report.

Public Relations Kits.—These kits, which will be supplied to each delegate, will contain:

1. The fourteen point Program of the American Medical Association.
2. Objectives of the Council.
3. Articles that have appeared in THE JOURNAL on regional conferences.
4. Copies of the News Letter and Special Bulletins.
5. Bulletins from the Washington Office.
6. Legislative Résumé by the Bureau of Legal Medicine and Legislation.

Speakers' Kits.—The Council intends to supply as soon as possible "speakers' kits" to all who may be called on to give talks to medical societies or lay groups. Each kit will supply basic material that may be augmented and applied to local conditions as the circumstances warrant.

INSURANCE

One of the mandates of the House of Delegates was that the Council should employ a full time Director of Insurance. The Council feels that the field of voluntary insurance is one which perhaps is the most important of all for its activities at this time. Although the Council has striven to obtain the services of a qualified man, so far its efforts have been unavailing; but it hopes that the proper person will be obtained before the House meets again.

The immediate problems in this field are:

1. Bringing up to date the information on the various medical society indemnity and service plans.
2. Study of how they may be improved and extended.
3. Methods of stimulating the formation of new plans.
4. A study to bring up to date information on various industrial plans.
5. A study of commercial plans.
6. A study of the feasibility of a national plan.

The problem of voluntary sickness insurance has received much attention from the Council. With the cooperation of the directors of the various plans sponsored by county and state medical societies, a study is being made on this subject. A preliminary report on this survey appeared in the Aug. 18, 1945 issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and other reports will follow from time to time. Several proposed plans for the formation of a national indemnity company have been submitted to the Council. In general these plans each proposed the formation of a company based on the Blue Cross organizations to sell indemnity insurance to employers having national payrolls and to utilize the facilities of local plans wherever they were available and to stimulate the formation of other such plans where none existed, the national company to withdraw from the field of competition wherever such existed. Sponsors of these plans claimed that, as far as medical policies and services are concerned, these were to be in the hands of the medical profession.

While in essence this was the proposal in each plan, there was no written confirmation of some of the points in any plans proposed, and, as these plans were indefinite in many of their

points, the Council felt that it could not approve them. The Council did, however, relay to the sponsors of one plan, certain basic fundamentals which it felt would be necessary before any plan could hope to obtain the support of the medical profession. These fundamental points were that:

1. Any plan developed must deliver medical control of all medical policies and medical service into the hands of the medical profession.
2. The final approval of the selection of any medical control board set up under 1 should in the last analysis be by a responsible group of the organized medical profession.
3. The plan must not interfere with the development of either cash indemnity or service plans developed by local medical societies.
4. The practice of hospitals selling medical service is not approved, and the special services of anesthesiology, pathology, radiology or physical therapy or any other medical service should be in the medical contract and not in the hospital contract.

The Council received a delegation representing large and important insurance companies on the matter of a fee schedule for surgical and maternity care. This delegation asked the help of the Council to evaluate the various surgical procedures in order to grade the various procedures on a unit scale. After thorough discussion it was decided to appoint a consulting committee of surgical specialists to consider the feasibility for assessment of the various surgical procedures in a unit system for purposes of insurance reimbursement.

A Conference on Medical Service Plans to include discussion on the following points was planned but had to be postponed because of the restrictions on transportation:

- Full Coverage vs. Limited Coverage.
- Service vs. Indemnity (Reimbursement) Plans.
- Actuarial Facts in Relation to Administrative Factors.
- Relation of Medical Care Plans to Hospitalization.
- Relation of Medical Societies to Administration of Medical Care Plans.
- Relation of Specialist to Insurance Plans.
- Interstate Coordination of Medical Care Plans.
- Relation of N. P. C. to Prepayment Plans.
- Indigent.
- Rural Enrolment.
- Individual Enrolment.
- Low Cost-Low Benefit Plan.
- Trade Territories vs. State Lines.
- Income level.
- Family Coverage.

INDUSTRIAL HEALTH

A joint meeting with the Council on Industrial Health was held Aug. 31, 1945. This would have been held earlier had not wartime restriction interfered. Details in regard to this meeting will be reported in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

CONTACTS WITH OTHER GROUPS

At the December 1944 meeting of the Council, conferences were held with representatives of the American Federation of Labor and with representatives of the various government agencies in Washington.

Two releases were drawn up and given to the press, both of which dealt with means of making the Platform of the American Medical Association an active program. Both of these releases were sent to the Council's mailing list.

Discussion was also had as to the advisability of legislation to further the aims of this program, and the Council's recommendation was referred to the Board of Trustees.

The Council has arranged a meeting to be held Oct. 18, 1945 in Chicago with representatives from the special obstetric, pediatric, orthopedic, heart and general practitioner groups to discuss the EMIC program.

SERVICE FELLOWSHIPS

The Council is very much disturbed over the fact that many Fellows of the American Medical Association have lost their fellowships while in the military service. While no one loses his membership so long as he remains in good standing in his county and state societies, which in most instances have remitted the dues of members in service, many have lost their Fellowship in the American Medical Association. As a result of this many men in service have not received the selected Association's publications. The Council, therefore, recommends that the necessary changes in the By-Laws be prepared for submission to the House of Delegates to provide that any Fellow entering the armed forces retain his Fellowship, and that all those who have been dropped as Fellows be reinstated and kept on the

list of Fellows until the end of the war or six months after the termination of their military service. Such Fellows, of course, would not be entitled to receive any of the journals unless they subscribed but their status as Fellows would be protected.

CHRONIC DISEASE, INCLUDING CANCER

The Council recommended that a committee on chronic diseases be set up by the Board of Trustees, as that particular field does not seem to fall within the province of any existing council or committee of the American Medical Association.

The executive director of the American Cancer Society appeared before the Council and asked that the American Medical Association set up guiding standards for cancer clinics to be operated under the supervision of the county medical societies.

It was voted that the Council appoint an advisory committee to confer with the American Cancer Society until such time as the Board of Trustees appoints a committee on chronic diseases when it seems feasible that this latter committee should take over the work. The purpose of this advisory committee is to go into the objectives of the American Cancer Society and to draw up general standards for cancer clinics when and where such clinics are operated with the approval of county medical societies. The Council feels that each state society should have such advisory committees.

INTERIM AUTHORITY

The Council feels that authority should be given to some group to act on questions of public policy in the interim between meetings of the House of Delegates. While the House of Delegates is the policy making body of the Association, and rightly so, nevertheless, emergencies arise which should be met promptly, and the delay of awaiting a decision of the House might prove disastrous. Hence the Council recommends that either the Board of Trustees or the Executive Committee of the Board and the executive committee of the Council, acting jointly, be given authority to determine the stand of and initiate appropriate action for the American Medical Association when urgent questions arise.

LEGISLATION

The Council has also considered many legislative matters, especially the Hill (Colorado)-Burton (Ohio) bill (S. 191), the Ellender (Louisiana) bill (S. 637), the Wagner (New York)-Murray (Montana)-Dingell (Michigan) bills (S. 1050 and H. R. 3293) and the Pepper (Florida) bill (S. 1318) to extend the EMIC program.

WASHINGTON OFFICE

Report of Washington Office by Dr. Joseph S. Lawrence, Director:

The Washington Office of the Council on Medical Service and Public Relations, located on the ninth floor of Doctors' Hospital, 1835 I Street N.W., was formally opened on Sept. 1, 1944. Considerable difficulty was experienced in obtaining priorities for both personnel and equipment. However, eventually the necessary authority was obtained and, while the office space, equipment and staff are still far from adequate, they are the best that can be obtained at present.

Bulletins.—At once steps were taken to establish relationships with the state associations. The officers of each association were asked to select persons in their associations with whom they expected the office to communicate. This list of names became the nucleus for a bulletin and mailing list.

Hearings.—Early in September two congressional committees were holding important hearings, a subcommittee of the Senate Committee on Education and Labor was holding hearings on the general subject of wartime health and education; a committee of the House of Representatives, also a subcommittee of the House of Representatives Committee on Labor was holding hearings at which testimony was taken as to the economic situation of the physically handicapped. In September the field of the aid to the deaf and the hard of hearing was particularly explored. These hearings were attended and reported, abstracts being made from the statements handed in by the witnesses. These abstracts were distributed to those on our mailing list by a series of bulletins.

The bulletins were very well received and many requests were sent in for the addition of names to the mailing list. The list started with probably 300 names and at present there are approximately 700 names.

Report of Bills.—With the inauguration of the new Congress, the 79th, the office began to report through the mailing list the bills as they were introduced which have a bearing on health or medical practice. The bill is reported by number, the name of its introducer and the committee to which it is referred. If possible it is ascertained from the introducer his particular reason for asking for legislation of this character. A short statement is made of what the bill contains if the title is not too clear. Mr. Holloway, Director of the Bureau of Legal Medicine and Legislation, will analyze and interpret the bills and distribute that information through his mailing list. Notification will be made in the bulletins of any hearings that may be announced and the status of bills reported out of committee. To date twenty-nine House bills and eight Senate bills have been reported.

Congressman Arthur L. Miller (Nebraska), a physician, introduced early in the session of the 79th Congress a bill (H. R. 1391) providing for the assembling of the various health activities now distributed among more than a score of federal departments and bureaus into one department, the United States Public Health Service. He argues that such an arrangement would be both more efficient and economical than the present conditions. He also provided in the bill for the creation of a position in the President's cabinet for a Secretary of Health. The hearings conducted by the Subcommittee on Postwar Planning during the last summer and autumn were very informative and enlightening on the state of health and medical conditions in the nation. The principal finding is that conditions in the rural areas are definitely inferior to what can be expected in urban areas but at present the congestion of population in industrial areas, especially where defense plants are located, has produced a severe strain on health and medical facilities there also.

Testimony at these hearings was given by prominent leaders and authorities in health and medical societies, industry, labor, education, agriculture and social affairs. A common refrain from all was the discouraging ignorance of what is good health and the lack of interest on the part of many in achieving or maintaining it. There is an obvious need for a widespread health education program. Industrial leaders testified to the benefits derived from the institution of scientifically prepared and supervised nutritional opportunities in their factories. Educators told of the great advantages school children are reaping where the schools provide luncheons. The ignorance of the average individual of the facts of proper diet and living conditions is deplorable, they declared.

Outgrowths of these hearings and stimulated by them are a number of bills: (1) The Hill (Colorado)-Burton (Ohio) Hospital bill (S. 191), which would aid rural districts to procure needed hospital facilities, (2) Weiss (Pennsylvania) (H. R. 2044) and Hartley (New Jersey) (H. R. 2045) Physical Fitness bills and (3) several proposals to aid schools to provide th: children with supplementary luncheons.

It was also brought out at the hearings that the principal cause for classification as 4-F was illiteracy and, second, mental conditions unsuitable for combat war. About 16 per cent of those classified as 4-F could probably be cured or improved by suitable medical attention; but a startling observation was reported in this connection, namely that in a certain district disqualifying defects found by the Selective Service examining board had been discovered years before by school examining physicians and reported to the parents but never corrected.

Providing adequate medical care for the veterans is looming up as the major health and medical problem for the next few years. A number of bills are before Congress suggesting needed changes in the present laws. These bills should receive careful study by us: H. R. 650 Allen (Louisiana), H. R. 1513 Kildey (Texas), H. R. 1661 Rogers (Massachusetts), H. R. 2253 Priest (Tennessee), H. Res. 172, H. Res. 185 Rankin (Mississippi), H. R. 2611 Latham (New York) and H. R. 2920 Rogers (Massachusetts).

Another investigation in progress is the rehabilitation of the handicapped. Measures are being developed to help especially the blind and hard of hearing to adjust and adapt themselves so as to be self supporting. Among such bills are H. R. 141 Voorhis (California), H. R. 1411 Angell (Oregon), H. R. 1415 Angell (Oregon), H. R. 2020 Voorhis (California) and H. Res. 45 Kelley (Pennsylvania).

Grave concern was manifested over the decision of the Selective Service to discontinue deferring students who desire to enter the medical profession. Senator Ellender of Louisiana, having endeavored to have the Army reconsider its action without avail, introduced a bill (S. 637) hoping to secure the approval of Congress. His bill is being considered by the Military Affairs Committee. The committee has been informed that if the regulation is permitted to stand the enrolment of students in 1946 will be greatly reduced. Representative Walter H. Judd of Minnesota had introduced an identical bill in the other House.

Two unique bills are H. R. 2969 Eberharter (Pennsylvania), which provides that any physician holding a license to practice in any state shall, when discharged from service, be entitled to receive a certificate granting him the right to practice in any state of his choosing, and S. 837 Langer (North Dakota), which would have the federal government pay to parents \$500 on the birth of their second child, \$750 on the birth of the third and \$1,000 for the fourth and each additional child. The perennial bill H. R. 491 Lemke (North Dakota) opposing the employment of the dog in research has reappeared.

Senators Wagner of New York and Murray of Montana introduced a revised edition of the 1943 health insurance bill (S. 1050). An identical bill was introduced in the House of Representatives at the same time by Congressman Dingell of Michigan (H. R. 3293). Legislation has been introduced in both houses (S. 1072 Johnson Colorado), H. R. 3310 Rankin (Mississippi) and H. R. 3317 Rogers (Massachusetts) providing for the creation of a Department of Medicine and Surgery in the Veterans Administration. Congressman Priest of Tennessee has introduced a bill (H. R. 2550) providing for the creation of a National Neuropsychiatric Institute. Senator Pepper of Florida and some other senators jointly are sponsoring an identical bill in the Senate.

When requested, the Association's position or views on legislation under consideration by committees have always been presented by properly selected representatives.

Conferences.—As the establishment of the Washington office is becoming known among government bureaus, requests for consultation and information are being received. When the requests are of a specific character, they are referred to the particular Council in Chicago for reply. Congressmen also have called for assistance in discussing the value or merit of certain proposals of legislation. The manner in which both representatives of the bureaus and of Congress received the knowledge that the American Medical Association has established and is conducting such an information bureau in Washington has been abundantly gratifying.

Office.—The Washington office is still very much cramped for office space, but we are not the only ones in Washington who are suffering because of lack of space and personnel. The government takes over all of the extra space as it becomes available, and those with priorities take out the best of the personnel; but our future does not look too dark. As for personnel, we hope in time to find an ex-serviceman who will qualify as secretary for us. The friendly reception which has greeted us everywhere that we have gone in Washington leads us to believe that the office has a very bright future.

REGIONAL CONFERENCES

Another feature of the program has been the conduct of regional meetings. The first of these was held back in May 1944, when Dr. Roger I. Lee invited representatives of the New England states to a conference at the Harvard Club of Boston. The director of the Washington office was also invited and outlined the proposed program for that office. Since the 1st of September, five other conferences have been held. The first was in Cincinnati, to which representatives from Ohio, Indiana, Kentucky and West Virginia were invited. The conference was well attended and interest was very encouraging.

The second conference formed a part of an annual conference held by the physicians for the North Central states. Dr. Adson and the director of the Washington office were invited to take part in the program, at which time the plan of the Council was presented and thoroughly discussed.

The Council met in Washington early in December, and at the close of the meeting the third regional conference was held, to which representatives of the Atlantic Coast states were invited. Subsequently other conference have been held. One for the Central states was held at Kansas City, one in Atlanta for the states of the Southeast and later one in Portland, Ore., to which representatives of the West and Northwest were invited.

The program of the conferences has developed and with each conference some changes have been incorporated. At present the forenoon program is given over to the secretaries of various Councils of the American Medical Association, each taking a brief time for outlining the program of his Council and an opportunity is given for discussion after each presentation. In the afternoon the delegates are invited to introduce any subject for discussion that they may choose. In most instances the principal subject has been that of voluntary insurance, each state making a report on what its experience has been and what future program it has outlined. These discussions have been most informative and are proving very helpful. On the whole the program of these conferences is twofold: first, to acquaint the state officials with the program of the Council and the part to be played by the Washington office; second, to make the acquaintance of the state representatives and receive their suggestions as to what they expect of the Council. The attendance has been approximately thirty-five to fifty persons. Minutes are taken, mimeographed and distributed to those in attendance or who were invited to attend.

ADDITIONAL TALKS

In addition to the regional conferences, individual members of the Council have spoken at more than fifty meetings throughout the year. Talks were given before county and state medical societies, and on numerous occasions members of the Council made additional talks before lay groups or appeared on radio programs and discussed the work of the Council.

CONSTRUCTIVE PROGRAM FOR MEDICAL CARE

Perhaps the most effective work done by the Council during the past year was the preparation of the fourteen point "Constructive Program for Medical Care" with the approval of the Board of Trustees of the American Medical Association, which appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for July 21, 1945 and was simultaneously released to the newspapers and to the radio throughout the country. This program follows:

CONSTRUCTIVE PROGRAM FOR MEDICAL CARE

AMERICAN MEDICAL ASSOCIATION

This platform was adopted by the Council on Medical Service and Public Relations and the Board of Trustees of the American Medical Association on June 22, 1945

Preamble

The physicians of the United States are interested in extending to all people in all communities the best possible medical care. The Constitution of the United States, the Bill of Rights and the "American Way of Life" are diametrically opposed to regimentation or any form of totalitarianism. According to available evidence in surveys, most of the American people are not interested in testing in the United States experiments in medical care which have already failed in regimented countries.

The physicians of the United States, through the American Medical Association, have stressed repeatedly the necessity for extending to all corners of this great country the availability of aids for diagnosis and treatment, so that dependency will be minimized and independence will be stimulated. American private enterprise has won and is winning the greatest war in the world's history. Private enterprise and initiative manifested

through research may conquer cancer, arthritis and other as yet unconquered scourges of humankind. Science, as history well demonstrates, prospers best when free and unshackled.

Program

The physicians represented by the American Medical Association propose the following constructive program for the extension of improved health and medical care to all the people:

1. Sustained production leading to better living conditions with improved housing, nutrition and sanitation which are fundamental to good health; we support progressive action toward achieving these objectives:
2. An extended program of disease prevention with the development or extension of organizations for public health service so that every part of our country will have such service, as rapidly as adequate personnel can be trained.
3. Increased hospitalization insurance on a voluntary basis.
4. The development in or extension to all localities of voluntary sickness insurance plans and provision for the extension of these plans to the needy under the principles already established by the American Medical Association.
5. The provision of hospitalization and medical care to the indigent by local authorities under voluntary hospital and sickness insurance plans.
6. A survey of each state by qualified individuals and agencies to establish the need for additional medical care.
7. Federal aid to states where definite need is demonstrated, to be administered by the proper local agencies of the states involved with the help and advice of the medical profession.
8. Extension of information on these plans to all the people with recognition that such voluntary programs need not involve increased taxation.
9. A continuous survey of all voluntary plans for hospitalization and illness to determine their adequacy in meeting needs and maintaining continuous improvement in quality of medical service.
10. Discharge of physicians from the armed services as rapidly as is consistent with the war effort in order to facilitate redistribution and relocation of physicians in areas needing physicians.
11. Increased availability of medical education to young men and women to provide a greater number of physicians for rural areas.
12. Postponement of consideration of revolutionary changes while 60,000 medical men are in the service voluntarily and while 12,000,000 men and women are in uniform to preserve the American democratic system of government.
13. Adoption of federal legislation to provide for adjustments in draft regulation which will permit students to prepare for and continue the study of medicine.
14. Study of postwar medical personnel requirements with special reference to the needs of the veterans' hospitals, the regular army, navy and United States Public Health Service.

Respectfully submitted,

E. J. McCORMICK, Chairman
JAMES R. McVAY, Vice Chairman
ALFRED W. ADSON.
LOUIS H. BAKER
W. R. BROOKSHER.
JOHN H. FITZGIBBON.
HERMAN L. KRETSCHMER.
THOMAS A. MCGOLDRICK.
JAMES E. PAULLIN.
OLYN WEST.
THOMAS A. HENDRICKS, Secretary.

REPORT OF THE BOARD OF TRUSTEES

Bureau of Legal Medicine and Legislation

Customarily the annual report of the Bureau covers only the preceding calendar year. Owing to the delayed session of the House of Delegates this year, the present report will include references to matters that have occurred not only during the year 1944 but also during the current year.

CHEMICAL TESTS FOR INTOXICATION

Since 1937 the committee created by the House to study problems of motor vehicle accidents has studied carefully the relation of the action of alcohol to traffic accidents. In this study it has collaborated closely with the Committee on Tests for Intoxication of the National Safety Council. It has on several occasions recommended definite borderline limits for alcoholic influence in terms of amount of alcohol in the suspected drunken driver, and these limits have been approved by the House. In order to promote uniformity in state legislation in this field, the National Safety Council, through its Committee on Tests for Intoxication and with the active collaboration of the Bureau, has formulated a draft of a uniform bill which embodies the borderline limits approved by the House. The draft does not undertake to compel a driver suspected of being drunk to submit to a chemical test for intoxication. It does give legislative recognition of the borderline limits and assures that the results of the tests will be admissible in evidence. This draft was submitted to the Board of Trustees and was approved in principle. A similar approval by the House will be helpful in promoting the enactment of the law. The draft, in form, is an amendment to section 54, act V, of the Uniform Vehicle Code, and reads as follows:

SEC. 54. Persons under the influence of intoxicating liquor or of drugs—(a) It is unlawful and punishable as provided in subdivision (d) of this section for any person who is under the influence of intoxicating liquor to drive or be in actual physical control of any vehicle within this state.

(b) In any criminal prosecution for a violation of subdivision a of this section relating to driving a vehicle while under the influence of intoxicating liquor, the amount of alcohol in the defendant's blood at the time alleged as shown by chemical analysis of the defendant's blood, urine, breath or other bodily substance shall give rise to the following presumptions:

1. If there was at that time five hundredths per cent or less by weight of alcohol in the defendant's blood, it shall be presumed that the defendant was not under the influence of intoxicating liquor.

2. If there was at that time in excess of five hundredths per cent but less than fifteen hundredths per cent by weight of alcohol in the defendant's blood, such fact shall not give rise to any presumption that the defendant was or was not under the influence of intoxicating liquor, but such fact may be considered with other competent evidence in determining the guilt or innocence of the defendant.

3. If there was at that time fifteen hundredths per cent or more by weight of alcohol in the defendant's blood, it shall be presumed that the defendant was under the influence of intoxicating liquor.

4. The foregoing provisions of this subdivision shall not be construed as limiting the introduction of any other competent evidence bearing upon the question whether or not the defendant was under the influence of intoxicating liquor.

(c) It is unlawful and punishable as provided in subdivision d of this subsection for any person who is a habitual user of or under the influence of any narcotic drug or who is under the influence of any other drug to a degree which renders him incapable of safely driving a vehicle to drive a vehicle within this state. The fact that any person charged with a violation of this subsection is or has been entitled to use such drug under the laws of this state shall not constitute a defense against any violation of this subsection.

(d) Every person who is convicted of a violation of this section shall be punished by imprisonment for not less than ten days nor more than one year, or by fine of not less than \$100 nor more than \$1,000, or by both such fine and imprisonment. On a second or subsequent conviction he shall be punished by imprisonment for not less than ninety days nor more than one year, and, in the discretion of the court, a fine of not more than \$1,000.

The commissioner shall revoke the operator's or chauffeur's license of any person convicted under this section.

COMMITTEE TO STUDY THE RELATIONSHIP OF MEDICINE AND THE LAW

At the Cleveland, 1941, session a resolution was introduced calling for the appointment of a committee to survey the relationship of medicine and the law "with particular reference to the manner in which this relationship is exercised in those countries which still cling to the coroner system." It was contemplated that the committee would confer with a corresponding committee of the American Bar Association and that

information developed would be made available to state medical associations. The House referred the resolution to the Board, requesting systematic study of the problem involved.

The Board did give consideration to the resolution and appointed the suggested committee. The American Bar Association likewise designated a collaborating committee. A progress report was submitted to the House at the Chicago, 1943, session and a continuation of the committee was authorized in order that its work might be completed. A further and more comprehensive report was submitted to the House at the Chicago, 1944, session but through inadvertence this report did not receive consideration by a reference committee and therefore was not acted on by the House. It is felt that the House may wish to take some action on the 1944 report of the committee at the forthcoming session in Chicago. Printed copies of the report are available for study.

PRESCRIBING NARCOTICS BY TELEPHONE

The United States Commissioner of Narcotics has called the attention of the Association to the difficulty that is resulting throughout the country because of the frequency with which physicians telephone narcotic prescriptions. This practice, he reports, has resulted in abuse and illicit traffic, many peddlers and addicts using this means to obtain morphine. A federal grand jury investigation has resulted in one community, and the report following the investigation described the facts developed as disclosing a shocking disregard of the law and as reflecting a condition "intolerable and wholly unwarranted." Under existing regulations, the furnishing of narcotics pursuant to telephone advice of physicians is prohibited whether prescriptions covering such orders are subsequently received or not, except in an emergency. In case an emergency does arise, a druggist may deliver narcotics through his employee or responsible agent pursuant to a telephone order only if the employee or agent is supplied with a properly prepared prescription before delivery is made, and this prescription must be turned over to the druggist and filed by him as required by law. As suggested in a Current Comment published in *THE JOURNAL*, Aug. 11, 1945, physicians will aid materially in preventing the abuses referred to by the Commissioner of Narcotics if they restrict orders for narcotics by telephone strictly to actual cases of emergency.

ISONIPECAINE

In the report of the Bureau transmitted to the House in 1944, reference was made to a suggestion by the Commissioner of Narcotics that Demerol, be brought within the purview of narcotic laws. The House of Delegates adopted a recommendation of the reference committee on legislation and public relations in support of restricting the sale of Demerol (isonipeaine) in this manner. A federal law has now been enacted to accomplish this end (Public Law No. 414, 78th Congress). Similar laws have been enacted in twenty-two states: Alabama, California, Connecticut, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Minnesota, Mississippi, New Jersey, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Vermont, Virginia and Wisconsin.

INFORMATION FOR MEDICAL OFFICERS

The Bureau has cooperated with the Bureau of Information in supplying medical officers with available information with respect to licensure requirements. A considerable number of such inquiries have been received and answered. They have fallen in one of four general classifications: (1) those relating to reciprocity, (2) those relating to requirements for licensure where the medical officer by reason of entry into service was prevented from obtaining a license, (3) those from graduates of unapproved schools who have inquired if, by reason of military service, the states in which they otherwise would be unable to qualify would grant them licenses and (4) those relating to benefits made available to medical officers by the G. I. Bill of Rights.

Interest has been manifested, too, by a number of medical officers in the bill introduced in Congress by Representative Eberharter of Pennsylvania, H. R. 2969, under the provisions of which a medical officer, on honorable discharge, would be entitled to practice in any state of choice without compliance with the laws of that state provided he was licensed in any

state prior to entry into service. Further comment on this bill will be made later in this report.

Cooperation was additionally given the Bureau of Information in the preparation of its Bulletin for Medical Officers.

ENABLING ACTS FOR MEDICAL SERVICE PLANS

Early in 1945 a compilation was made available of the laws that had been enacted at that time under which nonprofit prepayment medical service plans may be created and operated. This compilation, in pamphlet form, contains verbatim copies of the laws in thirteen states: California, Connecticut, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Vermont, Virginia and West Virginia. Ready access to these laws will be of value to state medical associations and their attorneys in the preparation of enabling laws for their states.

During the 1945 legislative session, laws with similar objectives were enacted in ten additional states: Florida, Illinois, Iowa, Kansas, Maryland, Minnesota, North Dakota, Rhode Island, Tennessee and Wisconsin. Laws of this character failed of enactment in Colorado and South Dakota. The enabling act of New Hampshire was amended to permit reciprocal relations with medical service corporations of other states.

These new laws will be included in a supplement to the compilation that has already been made available. During 1945 the services of the Bureau were utilized in the drafting of legislation for prepayment medical service plans in a number of states.

COMPULSORY SICKNESS INSURANCE

The current legislative year witnessed a number of proposals in state legislatures looking toward the establishment of compulsory sickness insurance schemes. None passed. The controversy was particularly acute in California, where several bills of this nature were before the legislature, one being commonly referred to as the Governor's Bill and another as the C. I. O. Bill. Other states in which similar legislation was proposed included Connecticut, Massachusetts, Michigan, New Mexico, New York, Wisconsin and Washington. Legislation was also introduced in a number of states to provide a system of compulsory cash benefits for unemployment due to sickness, similar to the Rhode Island law, including California, Colorado, Connecticut, Massachusetts, Minnesota, Montana, Nevada and New Jersey. None passed.

BLOOD BANKS

During 1944 and 1945, laws providing for the establishing of blood banks for civilian use were enacted in Illinois, Michigan, Montana, New Jersey, New York, North Dakota, Ohio and Vermont. Similar legislation failed of enactment in Alabama, California, Indiana and Kansas. In Missouri a bill is still pending.

LAW* FOR ESTABLISHMENT OF MEDICAL SCHOOLS

Legislation was introduced in seven states in 1945 either providing for new medical schools or authorizing studies to determine the advisability of establishing such institutions. In Florida a law became effective without the approval of the governor, authorizing the city of Tampa to establish a state university to include a school of medicine. In Massachusetts a law was enacted designating a commission to investigate the advisability of establishing a state university to include medical, dental, veterinary and osteopathic schools. In North Carolina the board of trustees of the university, with the approval of the governor and the North Carolina Medical Commission, was authorized to expand the two year medical school of the University of North Carolina into a standard four year medical school. In North Dakota there was created a Medical Center Advisory Council with authority, among other things, to formulate plans for a unified program for the improvement of the health of the people of the state, including ways and means for bringing about the complete training of adequate numbers of qualified physicians for the state, both in the general practice of medicine and surgery and in the field of public health. In South Dakota a new law was enacted authorizing an appropriation of \$150,000 to establish, equip and maintain a four year medical school at the South Dakota University. In West Virginia an interim committee was appointed to study the advisa-

bility of establishing a four year school of medicine in the state. In Washington a law was enacted establishing a medical and dental school at the University of Washington. A bill is still pending in Missouri contemplating the establishment of a medical school.

FEDERAL LEGISLATION

Seventy-Eighth Congress

The Seventy-Eighth Congress adjourned sine die Dec. 19, 1944. All legislation not finally acted on prior to adjournment died. During the Seventy-Eighth Congress 9,536 bills, joint, concurrent and simple resolutions, were introduced in the Senate and House. A total of 1,157 laws were enacted. Of the total bills introduced, approximately 390 were of sufficient medical interest to justify the publication of either brief or extended analyses of them in *THE JOURNAL*.

During the closing months of the Congress the following laws of interest to medicine were enacted:

The Public Health Service Act, consolidating and revising the laws relating to the service. Included in this law is a new authorization for an appropriation of \$10,000,000 for the fiscal year ended June 30, 1945 to develop more effective measures for the prevention, treatment and control of tuberculosis. Thereafter, such sums are authorized as may be needed. The law also continued in force a provision that for the duration of the war and for six months thereafter graduates of reputable osteopathic colleges shall be eligible for appointment as "reserve officers in the service." Too, the law authorizes the Surgeon General to make grants-in-aid to universities, hospitals, laboratories and other public or private institutions and to individuals for such research projects as are recommended by the National Advisory Health Council or, with respect to cancer, recommended by the National Advisory Cancer Council. The limit on the authorization of appropriation for venereal disease control was removed and the authorized appropriation for aid in establishing and maintaining public health services in the states was increased from \$11,000,000 to \$20,000,000 annually.

The G. I. Bill of Rights. A detailed analysis of this law was prepared by the Bureau and published in *THE JOURNAL*, July 15, 1944. Certain provisions of it are of particular interest to physicians in service, namely those relating to refresher and postgraduate courses and those relating to the guaranty of loans for the purchase of equipment and supplies to be used in a gainful occupation. The benefits of this law are available to commissioned and noncommissioned personnel alike. Prior to June 29, 1945 much uncertainty obtained as to whether a commissioned officer of the Public Health Service would be entitled to the full benefits of this new law. On that date the President, by Executive Order No. 9575, declared the commissioned corps of the Public Health Service to be a military service and by that action removed all doubts as to the availability of the benefits of the law to members of such commissioned corps.

Additional appropriations for the EMIC program. Two additional appropriations were made available to continue this program, one in the amount of \$6,700,000 and the other in the amount of \$42,800,000 plus \$43,000 for administrative expenses of the Children's Bureau. Through the Seventy-Eighth Congress a total of \$73,743,000 has been specifically allotted by Congress for providing obstetric and pediatric care to the beneficiaries of the program. To initiate the program \$390,477 from the regular appropriation authorized for maternal and child health activities was used.

Limitation of production of opium. A new law requests the President to approach the governments of all opium-producing countries throughout the world, urging on them that they take immediate steps to limit and control the growth of the opium poppy and the production of opium and its derivatives to the amount actually required for strictly medicinal and scientific purposes.

Services in the Medical Reserve Corps in relation to pay. By reason of a decision of the Comptroller General, former members of the Medical Reserve Corps were denied the right to include the time they served in that corps in the computation of their pay. A law was enacted by the Seventy-Eighth Congress under which such service may be included.

Department of Agriculture Organic Act of 1944. This law contains a provision that none of the money made available in the Department of Agriculture Appropriation Act, 1944, for loans, grants and rural rehabilitation may be used in the promotion or aid of any program of medical care which prevents a patient from having the services of any practitioner of his choice so long as there is a compliance with state laws. This restriction, however, is not applicable to the promotion or aid of a program of medical care where a majority of the participants within the program group elect to confine their choice of practitioners to a list of available licensed practitioners selected by them.

Seventy-Ninth Congress

The first session of the Seventy-Ninth Congress convened Jan. 3, 1945 and is in progress at the time this report is being prepared. Of the many important bills of medical interest which have been introduced, the following deserve consideration:

Industrial Health Under Jurisdiction of Labor Departments.—A bill, H. R. 525, is pending in the House of Representatives, with a favorable committee report, to provide for cooperation with state agencies administering labor laws in establishing and maintaining safe and proper working conditions in industry and in the preparation, promulgation and enforcement of regulations to control industrial health hazards. An appropriation of \$5,000,000 will be made available annually to the Secretary of Labor for allotment to cooperating state agencies administering labor laws. While the bill provides that, in the operation of plans to be developed, the available services and facilities of public health authorities in the field of industrial hygiene shall be utilized, sums that will be allotted must be expended in accordance with rules and regulations prescribed by the Secretary of Labor and plans jointly developed by the agency administering labor laws of the states and the Division of Labor Standards and approved by the Secretary of Labor. This bill, if enacted, will confer on labor departments, on federal and state levels, jurisdiction over industrial health problems. A companion bill, S. 1271, has been introduced by Senator Johnston, South Carolina, for himself and Senator Ball, Minnesota. It is pending in the Senate Committee on Education and Labor.

At the Kansas City, 1936, session of the House, a resolution was adopted relating to industrial health hazards in which was expressed the conviction that "any active efforts by governmental agencies to study and to take measures tending to eliminate occupational diseases should be carried out under the supervision of the city, state or federal departments of health in this country." On July 8, 1939 the Council on Industrial Health adopted a resolution, subsequently approved by the Board of Trustees in February 1940, to the effect that "the interests of the industrial worker will best be served by continued concentration of industrial hygiene in the federal and state health departments.

Legislation similar to the pending bill was introduced in the Seventy-Eighth Congress. At the Chicago, 1944, session a resolution was introduced in the House expressing opposition to the legislation and reaffirming the belief that "any extension of governmental activities in the field of industrial health and hygiene should be developed under the supervision and guidance of the U. S. Public Health Service and state departments of health." The Reference Committee on Legislation and Public Relations, in recommending disapproval of the resolution, said "Your reference committee feels that the work described in H. R. 4371 could best be done through the state and local authorities with monies allotted to them by the Secretary of Labor rather than through the United States Public Health Service as suggested in this resolution." The report of the reference committee was adopted.

In the report of the Bureau submitted to the House last year, reference was made to the then pending industrial hygiene bill. The report of the Bureau was referred to the Reference Committee on Report of Board of Trustees and Secretary, which committee, in referring to the industrial hygiene bill, said "A pending bill conferring jurisdiction over industrial hygiene on labor departments requires additional study." The report of the reference committee was adopted.

Two other actions taken by the House last year involved to a great extent the same principle involved in the industrial hygiene bill. The House adopted a resolution to transfer the EMIC program from the Department of Labor to the United States Public Health Service. It recorded its approval of the Miller bill proposing to transfer all government agencies dealing with health to the United States Public Health Service.

In view of the foregoing, the House may wish to reconsider the implications inherent to H. R. 525 and to clarify its opinion with respect to the bill.

National Neuropsychiatric Institute.—Companion bills are pending respectively in the Senate Committee on Education and Labor and in the House Committee on Interstate and Foreign Commerce proposing to enact a National Neuropsychiatric Institute Act, S. 1160, introduced by Senator Pepper, Florida, for himself and Senator Thomas, Utah, Senator Tunnell, Delaware, Senator Hill, Alabama, Senator Murray, Montana, Senator LaFollette, Wisconsin, and Senator Aiken, Vermont, and H. R. 2550, introduced by Representative Priest, Tennessee. This legislation would establish in the United States Public Health Service a National Neuropsychiatric Institute with the following functions: (1) to conduct researches, investigations, experiments and demonstrations relating to the cause, diagnosis and treatment of neuropsychiatric disorders; (2) to assist and foster similar research activities by other agencies, public and private, and to promote the coordination of all such researches and activities and the useful application of their results; (3) to train personnel in matters relating to neuropsychiatric disorders, and (4) to develop and assist states in the use of the most effective methods of prevention, diagnosis and treatment of neuropsychiatric disorders. A National Advisory Mental Health Council will be created to function with the Surgeon General of the Public Health Service, consisting of the Surgeon General, as chairman, and six members appointed by him with the approval of the Federal Security Administrator.

The Surgeon General will be authorized, through the institute, (1) to conduct and foster researches and experiments relating to the cause, prevention and methods of diagnosis and treatment of neuropsychiatric disorders; (2) to promote the coordination of researches conducted by the institute and similar researches conducted by other agencies; (3) to make available research facilities of the service to appropriate public authorities and scientists; (4) to make grants-in-aid to universities, hospitals, laboratories and other public or private institutions, and to individuals for such research projects as are recommended by the National Advisory Mental Health Council; (5) to admit voluntary patients at the institute to be established for the purpose of study; (6) to provide for the dissemination of information obtained as a result of the research carried on relating to neuropsychiatric disorders; (7) to establish fellowships in the institute; (8) to provide for training and instruction in matters relating to neuropsychiatric disorders, and (9) to assist states, counties, health districts and other political subdivisions of the states and nonprofit agencies in establishing and maintaining adequate measures for the prevention, treatment and control of such disorders.

The National Advisory Mental Health Council will be authorized (1) to review research projects or programs submitted to or initiated by it, (2) to assemble information concerning studies being carried on in the United States or any other country with respect to neuropsychiatric disorders and (3) to review applications for grants-in-aid and to certify to the Surgeon General its approval.

An appropriation of \$4,500,000 is to be authorized for the erection and equipment of suitable and adequate hospital buildings and facilities. An additional appropriation of \$10,000,000 for the fiscal year ending June 30, 1946 will be authorized to enable the Surgeon General to carry out the general objectives of the legislation. Thereafter for each fiscal year there will be authorized a sum sufficient to carry out its purposes.

Hearings were scheduled on the House bill, September 18, by a subcommittee of the House Committee on Interstate and Foreign Commerce.

A resolution was presented from the Section on Nervous and Mental Diseases at the New York, 1940, session endorsing the general objectives of legislation setting up a "Central Neuropsychiatric Institute to be established in the Public Health Service to carry on research in nervous and mental diseases" and advocating that such an institute have at its disposal funds to be allotted to competent groups throughout the country approved by a National Neuropsychiatric Advisory Council. At the time this resolution was presented to the House, no legislation was pending in the Congress relating to this matter. The House refused to adopt the resolution.

Hospital Construction Act.—Pending legislation contemplates the enactment of a Hospital Construction Act. The Senate bill, S. 191, was introduced by Senator Hill, Alabama, for himself and Senator Burton, Ohio, and is pending in the Senate Committee on Education and Labor. Four companion House bills are pending in the House Committee on Interstate and Foreign Commerce: H. R. 2498, introduced by Representative Neely, West Virginia, H. R. 2755, introduced by Representative Patrick, Alabama, H. R. 3561, introduced by Representative Priest, Tennessee, and H. R. 3845, introduced by Representative Snyder, Pennsylvania.

The broad objectives of this legislation have been approved by the Board of Trustees. It contemplates for the first year of its operation a total federal appropriation of \$110,000,000 earmarked as follows: \$5,000,000 to assist states to inventory existing hospitals, to survey the need and to develop a program for new construction, \$5,000,000 to assist state agencies to meet their administrative expenses in carrying out state plans, and \$100,000,000 for the construction of public and other nonprofit hospitals. Thereafter so much will be appropriated as the Congress may deem necessary. The term "hospital" is defined by this legislation to include "public health centers and general, tuberculosis, mental, chronic disease and other types of hospitals and related facilities, such as laboratories, outpatient departments, nurses' home and training facilities, and central service facilities operating in connection with hospitals, but shall not include any hospital furnishing primarily domiciliary care." A "public health center" is defined to mean "a publicly owned facility for the provision of public health services and medical care, including related facilities such as laboratories, clinics and administrative offices in connection with public health centers." On a federal level this hospital building program will be under the direction and supervision of the Surgeon General of the United States Public Health Service aided by a Federal Advisory Council, all appointed members of which will be appointed by the Administrator of the Federal Security Agency. The Surgeon General will serve as chairman ex officio of the council. On a local level, a state agency must be designated in plans submitted for approval as the administrative agency.

Hearings on the Senate bill were conducted by the Senate Committee on Education and Labor, Feb. 26, 27 and 28 and March 12, 13 and 14, 1945. Representatives of the Association participated in these hearings and recorded the approval of the Association to the general principles of the legislation. No further action has been taken by the Senate committee. As this report is being prepared, hearings have been scheduled on the legislation by the House Committee on Interstate and Foreign Commerce and a representative of the Association will participate in those hearings too.

Since this legislation contemplates state action to designate agencies on a state level to administer the program, to make the surveys of existing facilities and to formulate plans for the construction of additional facilities during the 1945 legislative season, the following twenty states enacted legislation anticipatory of the passage of the federal law: Alabama, Delaware, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Montana, New Mexico, Oklahoma, Oregon, Rhode Island, South Dakota, Texas, Utah, Vermont, Virginia, Washington and West Virginia. In the main, state departments of health in these states were designated as the state agency to function under the federal law.

An analysis of the provisions of the proposed federal law was prepared by the Bureau and published in *THE JOURNAL* for Jan. 27, 1945. Reprints are available.

Federal Licensure of Physicians.—A bill has been introduced in the House of Representatives by Representative Eberharter, Pennsylvania, relating to physicians and dentists who have served in the land or naval forces during the war period, H. R. 2969. It is pending in the House Committee on Military Affairs. This bill proposes that any individual who served as an officer in the Medical Department of the Army or Navy during the war period and was discharged or separated from service under honorable conditions and who, prior to such discharge or separation, held a license to practice medicine or dentistry under the laws of a state shall be entitled to receive a certificate which will authorize him to engage, in any state, in the practice of the particular class of medicine or dentistry covered by the state license held by him. It is contemplated that the Secretary of War and the Secretary of the Navy shall jointly prescribe regulations with respect to the making of application for, and the issuance of, such certificates, which will be issued to the medical or dental officer at the time of his discharge or separation from service. No action has been taken by the Congress on this bill, and it is doubtful that it can be constitutionally enacted. The theory of the bill, apparently, is that the certificates to be issued will legalize the practice of medicine or dentistry by the holder in any state without compliance with the requirements of laws of that state imposing requirements to be met by those desiring to engage in practice. To that extent the legislation would constitute a usurpation of authority by the federal government that the Supreme Court has said lodges with the individual states. That court has held that the direct control of medical practice in the states is beyond the power of the federal government (*Linder v. United States*, 268 U. S. 5). A similar conclusion has been reached by a United States District Court (*Starnes v. Rose*, 282 Fed. 336).

The Wagner-Murray-Dingell Bill.—The 1945 version of this legislation was introduced in the Senate by Senator Wagner, New York, and Senator Murray, Montana, as S. 1050 and in the House of Representatives by Representative Dingell, Michigan, as H. R. 3293. The bills are pending, respectively, in the Senate Committee on Finance and the House Committee on Ways and Means, the same committees to which similar bills in the Seventy-Eighth Congress were referred. No hearings have as yet been scheduled.

The text of the pending legislation contains 185 pages, 95 more pages than its predecessor. In broad outline it embraces the following: A new title will be added to the Public Health Service Act for grants and loans for hospitals and health center construction. This title corresponds, with significant exceptions, to the provisions of the Hill-Burton hospital construction bill. It removes some of the safeguards that are contained in the latter bill, particularly in reference to the functions of the Federal Advisory Council, and proposes a ten year building program for which \$950,000,000 is to be authorized. The pending legislation provides for grants and services to develop more effective measures for venereal disease and tuberculosis control and for the expansion and improvement of public health work. It proposes grants for maternal and child health services, for services for crippled children and for child welfare services. It would make available grants to states for public assistance to needy individuals, including medical care for such individuals. The most important section from the point of view of medicine, section 9, proposes to amend title II of the Social Security Act to provide a national social insurance system. The amended title would provide for (a) a compulsory system of sickness insurance, (b) a national system of unemployment and temporary disability insurance, including cash benefits for disability from sickness which causes unemployment, (c) retirement, survivor and extended disability benefits, (d) a national social insurance trust fund, (e) credit for military service, (f) extended coverage to include an estimated additional 15,000,000 persons, (g) contributions or taxes by employers, employees and the self employed and (h) certain general provisions to apply to the operation of the title.

The national social insurance system will be financed in general from a trust fund established by a 4 per cent employer and a 4 per cent employee tax on wages and salaries up to the first \$3,600 a year paid or received after Dec. 31, 1945. The tax

to be levied on the self employed will be 5 per cent of the market value of services subject to the same ceiling limitation. The taxes to be paid by states and localities and by their employees will be 2.5 per cent of the first \$3,600. The taxes that employers and employees will pay to finance the system will be distributed as follows:

Division of Taxes

Program	Employer	Employee	Total
1. Retirement, survivors and, extended disability insurance	1.0%	1.0%	2.0%
2. Medical care and hospitalization insurance	1.5%	1.5%	3.0%
3. Unemployment insurance	1.0%	1.0%	2.0%
4. Temporary disability insurance.....	0.5%	0.5%	1.0%
Total taxes	4.0%	4.0%	8.0%

The bill itself does not specifically undertake to make medical care available to the indigent class. It does provide that benefits may be extended to noninsured persons on behalf of whom equitable payments are made or assured by public agencies of the United States, the several states, or any of them or their political subdivisions. On behalf of the legislation, it is claimed that its enactment will not necessarily result in the displacement of existing prepayment medical service and hospitalization plans. The legislation does not refer to such plans *co nomine* but does direct the Surgeon General, after consultation with the Advisory Council as to questions of general policy and administration and with the approval of the Federal Security Administrator, to make agreements or arrangements with private agencies or institutions, or with private persons or groups of persons, to utilize their services and facilities.

A detailed analysis of the part of the legislation proposing to engraft on the social security program a system of compulsory sickness insurance was prepared by the Bureau and published in *THE JOURNAL*, June 2, 1945. Reprints are available. Whether or not hearings will be scheduled on this legislation, either by the Senate or by the House committee, remains, at the time of this report, a matter for conjecture. Consideration must be given to the possibility of developments along three avenues. The House of Representatives has authorized its Committee on Ways and Means to expend not in excess of \$50,000 in a study of the entire social security setup. This study will embrace, it is contemplated, the need for the amendment and expansion of the Social Security Act, with particular reference to old age and survivors' insurance and the problems of coverage, benefits and taxes. It is understood that public hearings will be held by the committee in the course of its investigation, and it is entirely possible that during the course of such hearings some of the proposals contained in the Wagner-Murray-Dingell bill will receive consideration. It has been suggested, too, that proponents of the pending legislation, realizing the difficulty that the passage of the omnibus bill faces, will make an effort to accomplish their purpose by obtaining the enactment of separate bills to accomplish the overall objectives of S. 1050. The third development that must be considered has relation to what the President will recommend to the Congress as intimated in his message of September 6. In this message he said, in part:

I shall shortly recommend a national health program to provide adequate medical care for all Americans and to protect them from financial loss and hardships resulting from illness and accident. I shall also communicate with the Congress with respect to expanding our social security system and improving our program of education for our citizens.

He called attention to the fact that the Congress has been considering legislation with respect to the construction of hospitals and health centers throughout the country and said that the federal government must continue to recognize its obligation to maintain and improve the health of the nation by providing federal grants where necessary for the construction of hospitals and health centers. He repeated President Roosevelt's suggestion for an economic bill of rights, which included the right to adequate medical care and the opportunity to achieve and enjoy good health.

If the President does submit a concrete program to the Congress, that program will without doubt have considerable influence on the prospects of action on the Wagner-Murray-Dingell bill.

Maternal and Child Welfare Act of 1945.—Pending legislation proposes a greatly expanded federal program for the health and welfare of mothers, infants and children and for services to crippled children. In the Senate a bill, S. 1318, was introduced by Senator Pepper and nine other members of the Senate Committee on Education and Labor, to which committee it was referred. Similar bills have been introduced in the House by Representative Norton, New Jersey (H. R. 3922), by Representative Kelley, Pennsylvania (H. R. 3994), and by Representative Patterson, California (H. R. 4059). They are pending in the House Committee on Labor, of which Representative Norton is chairman.

Senator Pepper has described the genesis of this legislation in this manner:

In administering the program of services for children under the Social Security Act, the Children's Bureau has sought the advice and counsel of outstanding physicians, social workers and members of other professions who are authorities in the fields of child health and child welfare, and of citizen groups concerned with the problems of children. For the past year the Bureau's technical and general advisory committees have been reviewing and reappraising the programs in relation to present needs. Their recommendations, in turn, have been studied by the National Commission on Children in Wartime. [Note: This commission was appointed by the chief of the Children's Bureau and was formerly known as the Children's Bureau Commission on Children in Wartime.] Members of this commission include the chairmen of the bureau's advisory committee and representatives of labor, farm, women's, church and professional groups.

The present bill embodies the essential recommendations of this distinguished group of citizens, which has released a report entitled "Building the Future for Children and Youth."

A detailed analysis of the provisions of this legislation was prepared by the Bureau and published in THE JOURNAL for Aug. 11, 1945. Reprints are available.

For the fiscal year ending June 30, 1946 an appropriation of \$100,000,000 is contemplated. Of this, \$50,000,000 is earmarked for maternal and child health services, \$25,000,000 for services to crippled children, \$20,000,000 for child welfare services and \$5,000,000 for administrative expenses of the Children's Bureau. In essence, the legislation would extend and greatly expand the EMIC program. It would make available to mothers and children medical care irrespective of financial needs. A "child" in contemplation of the legislation is any person under 21 years of age. All plans for the programs proposed must be approved by the Children's Bureau, and the chief of that bureau will formulate all general policies with respect to maternal and child health services and services for crippled children after consultation with a conference of health officers and an advisory committee to be appointed by her.

Senator Pepper has described this legislation as constituting a modest beginning and intimates that an annual appropriation of \$1,000,000,000 will be required adequately to provide the necessary services for children.

Additional Funds for EMIC Program.—Prior to the termination of the fiscal year ended June 30, 1945 the Congress appropriated a supplemental sum in the amount of \$2,200,000 to finance the program during the remainder of that fiscal year. In the regular appropriation bill for the fiscal year ending June 30, 1946 the sum of \$44,189,500 was made available. A new proviso was added to the language under which the Children's Bureau is forbidden to promulgate or carry out any regulation relating to the care of obstetric cases which discriminates between persons licensed under state law to practice obstetrics. This new proviso declares that any state plan which provides standards for professional obstetric services in accordance with the laws of the state shall be approved by the chief of the Children's Bureau.

Reorganization of Government Agencies; Federal Department of Health and Welfare.—Legislation is pending looking toward a reorganization of government agencies, S. 1120, introduced by Senator Overton, Louisiana, for Senator McCarran, Nevada. It is pending in the Senate Committee on the Judiciary, and public hearings are under way. No new department

of the federal government could be created under this legislation, but it authorizes the President to examine and formulate plans for the reorganization of all agencies of the government for the purpose, among others, of coordinating, grouping and consolidating agencies and functions of the government, as nearly as may be, according to major purposes. Any plan that is formulated by the President must be submitted to the Congress for approval. A similar reorganization measure was enacted by the Seventy-Sixth Congress in 1939, and the present bill proposes to extend the authority conferred on the President by that law. The enactment of the reorganization measure now pending was recommended by the President in his message to the Congress on May 24, 1945.

No action has been taken by the Congress on the Miller bill to establish a Federal Department of Health, H. R. 1391. It is pending in the House Committee on Expenditures in the Executive Departments. It would establish at the seat of government an executive department to be known as the Department of National Health, "at the head of which shall be the Secretary of National Health, who shall be appointed by the President, by and with the advice and consent of the Senate, and shall receive the same salary as the heads of other executive departments." There will be assembled in the new department, the bill proposes, all activities of the federal government relating to health.

Rumor persists that efforts will soon be made to create either a Department of Welfare or a Department of Health and Welfare in the federal government. A recent report of the Woman's Foundation recommends such action by the Congress and suggests that there be created in the department four divisions, one each for health, education, welfare and social insurance, and recreation.

Medical Care for Recipients of Public Assistance.—Representative Coffee, Washington, has reintroduced his bill to provide medical care for recipients of public assistance, H. R. 1820. It is pending in the House Committee on Ways and Means. It proposes for the first year of its operation an appropriation of \$18,000,000 for allotments to states that have developed plans approved by the Social Security Board. Thereafter, so much as is necessary will be authorized. The term "medical care" is defined to include such services, supplies and appliances for the diagnosis, cure, mitigation, treatment or prevention of disease, or for the purpose of "affecting any structure or function of the body," as may be approved by the Social Security Board.

Medical care will be provided, it is contemplated, (1) by the state agency administering or supervising the administration of the plan or (2) by other agencies of the state or political subdivision, in accordance with agreements authorized in regulations by the Social Security Board. Medical care might be provided directly by the state or other agency or indirectly through payments by the state or other agency to the person or persons furnishing the care.

A somewhat different approach to this problem is suggested in a bill introduced by Congressman Miller, Nebraska, H. R. 1442. It also is pending in the House Committee on Ways and Means and would authorize federal grants to the states to provide medical, surgical and hospital care to beneficiaries of old age assistance either through the purchase of insurance or through administration of a plan by or under the supervision of a state agency. It specifically requires that a state plan must "provide for cooperation with medical, health, nursing and welfare groups and organizations."

As indicative of the number of persons who might qualify for medical care under this legislation, attention is called to the fact that in June 1944 more than 2,000,000 needy old people were receiving old age assistance, about one fifth of the total aged population. During the same period approximately 261,000 families were receiving aid in behalf of some 653,000 children, and assistance payments went to nearly 74,000 needy blind persons.

G. I. Bill of Rights.—A considerable number of bills are pending to clarify and liberalize the provisions of the Servicemen's Readjustment Act of 1944. Action has been taken on only one of these bills, H. R. 3749, introduced by the chairman

of the House Committee on World War Veterans' Legislation, Representative Rankin, Mississippi. It has passed the House and is now pending in the Senate Committee on Finance. In addition to liberalizing the loan provisions of the existing law, this bill would effect certain changes in the provisions relating to the education of veterans. It would provide that courses may be initiated four years after the date of discharge of the veteran or the termination of the war and that no course could extend beyond nine years after the termination of the war; it would provide for short intensive postgraduate or vocational training courses of less than thirty weeks; it would authorize correspondence courses of education or training and would increase the subsistence allowance of a veteran undergoing training or pursuing a course of education from \$50 to \$60 a month, if the veteran is without dependents, and from \$75 to \$85 a month if the veteran has dependents.

A Senate bill, S. 1176, introduced by Senator Pepper, Florida, would amend existing law (1) to make benefits available regardless of whether or not education was impeded, delayed, interrupted or interfered with by reason of entry into service; (2) to remove the requirement that the educational course must be initiated not later than two years after discharge or termination of the war; (3) to remove the distinction between veterans over 25 years at the time of induction and those under this age; (4) to add special provisions for qualifying veterans who wish to complete preprofessional and professional courses of education, extending the maximum benefit to seven years regardless of length of service, and (5) to increase the monetary dependency benefits to veterans obtaining education. This bill is pending in the Senate Committee on Finance.

Under the original law a veteran is permitted to pursue a course of education in a school that has been certified to the Veterans Administration by an appropriate state agency as being qualified to give adequate courses of instruction. In a number of instances, state agencies have certified to the Veterans Administration that designated sectarian schools of the healing art, osteopathic, chiropractic and naturopathic, are so qualified. The effect of this certification is that at government expense veterans will be offered courses in such limited branches of the healing art. The Committee on Postwar Medical Service has taken cognizance of this situation and has urged the governors of the several states to take all due precautions to assure that no school of the healing art is certified to the Veterans Administration which is not fully qualified to give adequate and scientific instruction.

Aid to the Physically Handicapped.—The Seventy-Eighth Congress directed the House Committee on Labor, or a subcommittee thereof, to study the extent and character of aid given to the physically handicapped. A special committee was created to make the study, of which Representative Kelley of Pennsylvania was made chairman. In making the study a series of hearings has been scheduled, in some of which representatives of the Association have participated. The evidence submitted at these hearings has been published in eight parts. It relates to the aid given to the blind, to victims of poliomyelitis, to the deaf and hard of hearing, to those having orthopedic impairments, to other handicapping conditions and to the extent to which federal aid is now available to the handicapped. Further hearings are in progress at which particular attention is being given to questions related to amputations and the problems faced by amputees.

The resolution under which the Kelley subcommittee functions contemplates that recommendations for legislation will be submitted as the result of the study. It may be anticipated, therefore, that such recommendations may be submitted to the Seventy-Ninth Congress.

Health Programs for Government Employees.—Bills are pending in the Senate and House proposing to provide for health programs for government employees, S. 406, introduced by Senator Downey, California, and H. R. 2716, introduced by Representative Randolph, West Virginia. These bills are identical with the exception that the Senate bill contains a provision under which osteopaths would be permitted to participate in such programs. It is contemplated that any program to be developed under this legislation would be limited

to (1) treatment of minor illnesses except in an emergency or injury or illness sustained while in the performance of the employee's duty in accordance with the United States Employees' Compensation Act, (2) preemployment and other examinations, (3) referral of employees to private physicians and dentists and (4) education and preventive programs relating to health, including the alleviation of health hazards in the working environment. The House version of this legislation has been favorably reported by the House Committee on the Civil Service.

Penicillin.—Legislation was introduced to amend the Federal Food, Drug and Cosmetic Act by providing for the certification of batches of drugs composed wholly or partly of any kind of penicillin or any of its derivatives, H. R. 3266, introduced by Representative Lea, California. This bill has passed the House and Senate and was approved by the President, July 6, 1945, as Public Law No. 139. The language of it is similar to that of a law previously enacted by the Congress safeguarding the purity of insulin.

Dangerous Drugs.—Representative Robertson, Virginia, introduced H. R. 2348, a bill to provide for the coverage of certain drugs under the federal narcotic laws. It passed the House and subsequently the Senate in an amended form. The Senate amendments have not as yet been accepted by the House. In the language of the House Committee on Ways and Means, the purpose of this legislation is to provide a prompt and convenient method for bringing under the control of the federal narcotic laws any newly discovered synthetic drug which is determined, after appropriate inquiry, to possess the same or similar dangerous, habit forming or habit sustaining qualities as morphine or cocaine.

Vivisection.—There has been reintroduced in the House of Representatives a bill to prohibit experiments on living dogs in the District of Columbia, H. R. 491, introduced by Representative Lemke, North Dakota. This bill provides that it shall be a misdemeanor for any person to experiment or operate in any manner whatsoever on any living dog in the District of Columbia for any purpose other than the healing or curing of the dog. It is pending in the House Committee on the District of Columbia.

Chiropractors and the United States Employees' Compensation Act.—Bills are pending to permit chiropractors to treat beneficiaries of the United States Employees' Compensation Act, S. 178, introduced by Senator Murdock, Utah, and H. R. 610, introduced by Representative Tolan, California. The bills are pending, respectively, in the Senate Committee on Education and Labor and in the House Committee on the Judiciary. A subcommittee of the Senate Committee scheduled a hearing on this legislation at which representatives of the Association appeared in opposition. No committee action has followed.

Optometry and Podiatry Corps in the Army Medical Department.—Pending legislation, H. R. 3755, introduced by Representative Short, Missouri, proposes to establish an Optometry Corps in the Medical Department of the United States Army. The bill was referred to the House Committee on Military Affairs. Following a favorable report by that committee, the bill was passed by the House. Another bill, H. R. 1998, introduced by Representative Hoch, Pennsylvania, contemplates the establishment of a Chiropody Corps in the Medical Corps of the Army. This bill was referred to the House Committee on Military Affairs, and no action has been taken on it up to the time of preparation of this report.

Benefits for Railroad Employees.—Legislation is pending to increase materially the benefits now available to railroad employees under the Railroad Retirement Acts and the Railroad Unemployment Insurance Act. The Senate bill, S. 293, was introduced by Senator Wagner, New York, for himself and Senator Wheeler, Montana. It is pending in the Senate Committee on Interstate Commerce. No action has been taken on it. The House bills were introduced by Representative Jennings, Tennessee (H. R. 1102) and by Representative Crosser, Ohio (H. R. 1362) and are pending in the House Committee on Interstate and Foreign Commerce. Extended hearings on the House bills have been in progress.

In addition to providing cash benefits for periods of unemployment generally, this legislation specifically provides for cash benefits for periods of sickness resulting in unemployment and cash benefits for antepartum and postpartum maternity periods. It would authorize the federal administrative agency to enter into agreements or arrangements with physicians, hospitals, clinics or other persons for securing the examination, physical, medical, mental or otherwise, of persons claiming, entitled to or receiving sickness or maternity benefits and the performance of services or the use of facilities in connection with the execution of statements of sickness which must be filed by employees to obtain benefits. Similar legislation was introduced in the Seventy-Eighth Congress and was referred by the Board of Trustees to the Council on Medical Service and Public Relations for study and attention. The pendency of the present bills has been called to the attention of the Washington office of the Council.

Extension of Social Security Program. Numerous bills are pending proposing to extend and expand the social security program, other than legislation previously referred to in this report. It seems unlikely, however, that any action will be taken on them pending the outcome of the investigations that have been authorized to determine whether or not the program should be expanded. Reference will be made here to only one additional bill, S. 1188, introduced by Senator Green, Rhode Island, and pending in the Senate Committee on Finance. This bill is patterned after the legislation originally introduced in the Seventy-Seventh Congress by Representative Elliot and reintroduced in the Seventy-Eighth Congress by Senator Green. The previous legislation was analyzed by the Bureau in *THE JOURNAL*, Sept. 26, 1942. The present bill, as did its predecessors, provides disability and hospitalization benefits for employees and in addition would authorize the Social Security Board to provide for the furnishing of medical, surgical, institutional, rehabilitation or other services to individuals entitled to disability benefits if such services will aid in enabling such individuals to return to or resume their work.

Dental Health Programs. Three bills are pending to provide assistance to states in developing and maintaining dental health programs: S. 1099, introduced by Senator Aiken, Vermont, for himself and Senator Pepper, Florida, H. R. 3412, introduced by Representative Brehm, Ohio, and H. R. 3414, introduced by Representative Traynor, Delaware. The Senate bill is pending in the Committee on Education and Labor and the House bills in the House Committee on Interstate and Foreign Commerce. Another bill, also pending in the Senate Committee on Education and Labor, is S. 190, introduced by Senator Murray, Montana, to provide for, foster and aid in coordinating research relating to dental diseases and conditions and to establish the National Institute of Dental Research in the National Institute of Health of the United States Public Health Service. Hearings have been concluded on the two Senate bills. This legislation is sponsored by the American Dental Association.

Federal Programs to Promote Scientific Research. Under date of July 5, 1945 the director of the Office of Scientific Research and Development, Dr. Vannevar Bush, submitted to President Truman a report outlining a suggested federal program to promote scientific research and education. This report set forth five principles as basic to any such program:

1. Whatever the extent of support may be, there must be stability of funds over a period of years so that long range programs may be undertaken.

2. The agency to administer such funds should be composed of citizens selected only on the basis of their interest in and capacity to promote the work of the agency. They should be persons of broad interest in and understanding of the peculiarities of scientific research and education.

3. The agency should promote research through contracts or grants to organizations outside the federal government. It should not operate any laboratories of its own.

4. Support of basic research in the public and private colleges, universities and research institutes must leave the

internal control of policy, personnel and the method and scope of the research to the institutions themselves.

5. While assuring complete independence and freedom for the nature, scope and methodology of research carried on in the institutions receiving public funds, and while retaining discretion in the allocation of funds among such institutions, the federal agency must be responsible to the President and to the Congress.

The report recommended the broad outline of a bill for the enactment of Congress, including the suggested creation of a National Research Foundation. This foundation, the report suggested, should develop and promote a national policy for scientific research and scientific education, should support basic research in nonprofit organizations, should develop scientific talent in American youth by means of scholarships and fellowships, and should by contract and otherwise support long range research on military matters. Identical bills are pending in the Senate and the House of Representatives to implement the recommendations of the report. The Senate bill, S. 1285, was introduced by Senator Magnuson of Washington and is pending in the Senate Committee on Commerce. The House bills, H. R. 3852, introduced by Representative Mills, Arkansas, and H. R. 3860, introduced by Representative Randolph, West Virginia, are pending in the House Committee on Interstate and Foreign Commerce.

Subsequent to the introduction of these three bills, Senator Kilgore, West Virginia, for himself and Senator Johnson, Colorado, and Senator Pepper, Florida, introduced S. 1292 relating also to scientific research. This bill embodies principles which the Subcommittee on War Mobilization of the Senate Military Affairs Committee, on the basis of extensive studies made over the past two years, has set up as desirable in any legislation designed to meet the postwar scientific needs of the nation. It is pending in the Senate Committee on Military Affairs.

Other bills relating to scientific research are pending. Representative May, Kentucky, introduced H. R. 3440, which has passed the House and is pending in the Senate Committee on Naval Affairs. Senator Byrd, Virginia, has introduced S. 825, which is pending in the Senate with a favorable committee report. Senator Fulbright, Arkansas, has introduced S. 1236, which is pending in the Senate Committee on Commerce.

An analysis of all the pending bills relating to scientific research was prepared by the Bureau and published in *THE JOURNAL*, Aug. 11, 1945. Reprints are available. With the exception of the three bills designed to implement the recommendations contained in the Bush report, the pending bills differ in many details, and that fact was given recognition by Senator Kilgore at the time he introduced his bill. After referring to the other pending legislation, he expressed the hope that arrangements could be made for joint hearings "so that the issues presented by these different bills can be clarified and agreement reached at an early date on the scope of research needed in the interest of national security and also on the details of organization and administration so essential to the success of any national program of scientific research." Present indications are that joint or consolidated hearings will be scheduled for the month of October.

The Board of Trustees has given preliminary consideration to this legislation, and it has been referred to the Committee on Postwar Medical Care for detailed study. That committee has appointed a subcommittee to make the study, and a report by that subcommittee will shortly be made to the full committee.

Additional interest was undoubtedly stimulated in legislation to promote scientific research by the President's reference to the subject in his message to Congress, Sept. 6, 1945. He recommended the establishment of a single federal research agency which would discharge the following functions: (1) promote and support fundamental research and development projects in all matters relating to the defense and security of the nation, (2) promote and support research in the basic sciences and in the social sciences, (3) promote and support research in medicine, public health and allied fields, (4) provide financial assistance in the form of scholarships and grants to

young men and women of proved scientific ability, (5) coordinate and control diverse scientific activities now conducted by the several departments and agencies of the federal government and (6) make fully, freely and publicly available to commerce, industry, agriculture and academic institutions the fruits of research financed by federal funds. These recommendations parallel those contained in the Bush report.

Deferment of Premedical Students.—At the 1944, Chicago, session the attention of the House was called to the then recent action of Selective Service in relation to the deferment of premedical students. A resolution was adopted declaring it to be imperative that immediate action be taken by the President or the Congress to correct the drastic regulations resulting in a restriction in the number of students qualified to enter the courses of medical instruction in approved medical schools. Efforts to obtain a correction of the situation through administrative action proved fruitless and, early this year legislation was introduced by Senator Ellender, Louisiana, S. 637, proposing to authorize the release of persons from active military service, and the deferment of persons from military service in order to aid in making possible the education and training of physicians and dentists to meet essential needs. The bill was referred to the Senate Committee on Military Affairs, and a hearing was scheduled on it May 1. Representatives of the Association appeared in support of the bill, reflecting the position taken by the House at the 1944 session. No further action has been taken on this bill, and it is still pending in committee.

After progress of the legislation had been held up in the Senate, as the result of opposition of the War and Navy Departments and Selective Service, Representative Judd, Minnesota, sponsored a companion bill in the House, H. R. 3350, which was referred to the House Committee on Military Affairs. No action has been taken on the House bill.

Subsequently Senator Downey, California, introduced a resolution in the Senate, S. Res. 134, directing the Committee on Military Affairs to make a complete investigation with respect to the relative needs of the armed forces and the civilian population for the services of medical personnel with a view to ascertaining (1) whether, as a result of developments in the war, or through more efficient utilization of medical personnel, such personnel could be released from the armed forces for civilian service without impairment of the war effort, (2) the speed with which demobilization of medical personnel in the armed forces could be accomplished as the needs of the armed forces diminish and (3) whether any further action was necessary to insure an adequate supply of trained medical personnel to meet the future needs of the armed forces and the civilian population. The Senate Committee on Military Affairs has been exploring the subject further, but, at the date this report is being prepared, no definite procedures have been recommended by the committee to alleviate the situation.

Veterans' Legislation.—With the objective in view of improving the quality of medical care available to veterans, several pending bills propose a reorganization of medical services in the Veterans Administration. No action has been taken on any of them, S. 1079, introduced by Senator Johnson, Colorado, and H. R. 3310, introduced by Representative Rankin, Mississippi, propose to establish a Department or Bureau of Medicine and Surgery in the Veterans Administration. They are pending, respectively, in the Senate Committee on Finance and in the House Committee on World War Veterans' Legislation. H. R. 2253, introduced by Representative Priest, Tennessee, proposes to establish in the Veterans Administration a commissioned service consisting of physicians, surgeons, dietitians, nurses and medical technicians. A bill introduced by Representative Rogers, Massachusetts, H. R. 3317, proposes to establish a Bureau of Medicine and Surgery in the Veterans Administration. Both of the two last mentioned bills are pending in the House Committee on World War Veterans' Legislation.

The House of Representatives has passed a resolution, H. Res. 192, authorizing the Committee on World War Veterans' Legislation, acting as a whole or by subcommittee, to conduct an investigation of the Veterans Administration with a partic-

ular view to determining the efficiency of the administration and operation of Veterans Administration facilities. This investigation has been under way, and a report outlining the results of the investigation is expected to be filed shortly.

Another bill, S. 1187, introduced by Senator White, Maine, for Senator Shipstead, Minnesota, would authorize the appointment of an advisory committee of prominent members of the medical and related professions to advise the President with respect to the formulation of programs to provide medical care and hospitalization for veterans. No action has been taken on this bill. It is pending in the Senate Committee on Finance. A House bill, H. R. 3463, introduced by Representative Voorhis, California, proposes the creation of a National Veterans' Hospital Board with the following duties (a) to advise the Administrator of Veterans' Affairs on all matters pertaining to the hospital or outpatient care of veterans and concerning the appointment of a national executive director for all veterans' hospitals; (b) to conduct a complete survey of all veterans' hospitals and to recommend to the Administrator and the National Executive Director such changes in personnel, such hospital construction and such other action as may be necessary; (c) to consult with the Administrator and the Director on the appointment of chief medical officers for all veterans' hospital units in the United States; (d) to provide adequate arrangements and facilities for continuous research on improved methods in the fields of medicine, psychiatry and all other types of care required by veterans, and (e) to prepare a schedule of salaries, grades and classifications for all types of employees, professional or otherwise, in veterans' hospitals with a view to obtaining competent and qualified personnel. This bill is pending in the House Committee on World War Veterans' Legislation.

Two bills propose a general liberalization and clarification of the veterans law pertaining to hospital treatment, medical care, domiciliary care and related services, S. 1203, introduced by Senator Johnson, Colorado, and H. R. 3522, introduced by Representative Rankin, Mississippi. They are pending, respectively, in the Senate Committee on Finance and the House Committee on World War Veterans' Legislation.

Several bills are pending which would eliminate the financial inability of the veterans to defray expenses of hospital treatment or domiciliary care for nonservice disabilities as a condition precedent to obtaining such treatment or care in a veterans' facility. These bills would do away with what is customarily referred to as a "paupers' oath." As examples of bills of this character are H. R. 1923, introduced by Representative Morrison, Louisiana, H. R. 3332, introduced by Representative Barry, New York, and H. R. 599, introduced by Representative Springer, Indiana.

A bill introduced by Representative Miller, Nebraska, H. R. 3254, would authorize the furnishing of medical and hospital treatment to certain veterans in private facilities. This would be accomplished by defining the term "Veterans Administration facility" as used in the existing law to include any private facility for which the Administrator of Veterans' Affairs may deem it necessary to contract in order to provide medical and hospital treatment (1) in emergency cases; (2) for veterans of any war, in any case in which neither a facility under the exclusive jurisdiction of the Veterans Administration nor a government facility utilized by the Veterans Administration is within a reasonable distance of the place of residence of the veteran; (3) for women veterans of any war, and (4) for veterans of any war in the territories and possessions. A similar bill has been introduced by Representative Sikes, Florida, H. R. 3630. Both are pending in the House Committee on World War Veterans' Legislation. Representative Rogers, Florida, has introduced H. R. 3594, authorizing the Administrator of Veterans' Affairs to reimburse any accredited hospital for hospitalization and treatment, for a period not exceeding ten days, of a veteran of any war, not dishonorably discharged, on certification that the care was of an emergency character and that delay would jeopardize the health or life of the veteran. It is pending in the House Committee on World War Veterans' Legislation.

Three other bills propose to facilitate the receipt of hospital treatment and domiciliary care by former members of the armed forces at institutions nearest their places of residence: S. 755, introduced by Senator Cordon, Oregon, and pending in the Senate Committee on Finance, H. R. 2989, introduced by Representative Huber, Ohio, and H. R. 2921, introduced by Representative Stigler, Oklahoma, both pending in the House Committee on World War Veterans' Legislation.

Another bill, H. R. 1120, introduced by Representative Muddock, Arizona, proposes that for pension purposes any person who served under contract with the War Department as acting assistant or contract surgeon between April 21, 1898 and Feb. 2, 1901 shall be considered to have been in the active military service of the United States for the period of such contract service between those dates.

Pepper Subcommittee on Wartime Health and Education.—This subcommittee of the Senate Committee on Education and Labor is authorized by a Senate resolution to investigate the distribution and utilization of medical personnel, facilities and related health activities and the deficiencies in health and education among persons otherwise fit to be employed to the best advantage in agriculture, industry and other activities so as consistently with the spirit of American institutions and the national emergency best to promote the war and victory. The hearings scheduled so far by the subcommittee have been printed in seven parts. Parts 1 and 4 relate to juvenile delinquency, part 2 to the availability of medical services at Pascagoula, Miss., part 3 to the white collar and fixed income groups in the war economy, parts 5 and 6 to Selective Service objections, medical care in the armed forces and for veterans, and to the availability of medical services and facilities for the civilian population, and part 7 to medical research.

Four interim reports have been submitted to the Senate. Report 1 concerns the white collar and fixed income groups, report 2 juvenile delinquency, report 3 Selective Service statistics and the availability and distribution of medical services and facilities, and report 4 health needs of veterans. Report 3 was published in full in *The Journal*, Jan. 6, 1918 and reprints are available. In this report, after outlining some of the testimony developed at the hearings, the subcommittee included eight recommendations based on its preliminary findings: (1) that federal grants-in-aid to states be authorized for the construction of hospitals, medical centers and health centers, in accordance with integrated state plans approved by the United States Public Health Service; (2) that federal loans and grants be made available to assist in postwar provision of urban sewerage and water facilities, rural sanitation and water facilities, and milk pasteurization plants, in communities or areas where such facilities are lacking or inadequate; (3) that state and local governments be urged to establish full time local public health departments in all communities as soon as the needed personnel become available and that the federal government should increase the amount of its grants to state health departments to the end that complete geographic coverage by full time local health departments may be achieved and that state and local public health programs may be expanded in accordance with needs; (4) that the Army consider the feasibility and advisability of expanding its program for induction and rehabilitation of men rejected because of physical and mental defects; (5) that the medical records of the Selective Service system be preserved and that funds be appropriated for further processing and study of these records; (6) that attention be given to the shortage of personnel with training in psychology and psychiatry and that immediate steps be taken to increase the output of such personnel with a view to providing child guidance and mental hygiene clinics on a wider scale; (7) that federal scholarships or loans be made available to assist qualified students desiring medical and dental education and that increased enrolment of women in medical and dental schools, and premedical and pre-dental courses, be encouraged in every way possible, and (8) that federal funds be made available to states for medical care of all recipients of public assistance and that allotment formulas governing distribution of federal funds to state public assistance programs be made more flexible in order to give more aid to states where needs are greatest.

In the opinion of the committee, a comprehensive health and medical facilities program would pay big dividends in improved national health and physical fitness.

Miscellaneous.—Four bills have been introduced by Representative Price, Florida, proposing, respectively, to establish a United States Military Medical School, a United States Naval Medical School, a United States Navy Training School for Nurses and a United States Army Training School for Nurses, H. R. 3927, H. R. 3924, H. R. 3923 and H. R. 3926. The naval bills are pending in the House Committee on Naval Affairs, the army bills in the House Committee on Military Affairs. Another bill, H. R. 713, introduced by Representative Dickstein, New York, provides that there shall be created in each corps area of the United States a medical training school for the instruction of physicians for the armed forces and the United States Public Health Service. This bill is pending in the House Committee on Military Affairs.

S. J. Res. 89, introduced by Senator Pepper, Florida, for himself and Senator Wagner, New York, Senator Murray, Montana, Senator Capper, Kansas, Senator Bill, Minnesota, and Senator Smith, New Jersey, suggests the convening of an International Health Organization and authorizes the President to take immediate steps toward that end. It is pending in the Senate Committee on Education and Labor.

A bill introduced by Senator Langer, North Dakota, S. 800, proposes to establish a National Infantile Paralysis Clinic at Minneapolis and to appropriate \$20,000,000 for its establishment, maintenance and operation. Another bill, introduced by Representative Stevenson, Wisconsin, contemplates an appropriation of \$500,000,000 to be expended under the direction of the Surgeon General of the United States Public Health Service for research with respect to the cause and cure of cancer and poliomyelitis. It is pending in the House Committee on Interstate and Foreign Commerce.

Two bills propose to establish a United States Commission for the Promotion of Physical Fitness, H. R. 2011, introduced by Representative Weiss, Pennsylvania, and H. R. 2015, introduced by Representative Hartley, New Jersey. Both are pending in the House Committee on Education.

A pending bill, H. R. 1688 introduced by Representative Davis, Tennessee, would authorize the appointment of x-ray technicians as commissioned officers in the Medical Corps of the Army and Navy. Another bill, H. R. 3147, introduced, by request, by Representative Adams, New Hampshire, would authorize the appointment of qualified medical technologists as commissioned officers in the Army of the United States and in the Naval Reserve.

(To be continued)

Coming Medical Meetings

American Medical Association House of Delegates, Chicago, Dec. 3-6
Dr. Olin West, 545 N. Dearborn St., Chicago 10, Secretary.

American Academy of Medicine, Chicago, Dec. 10-11. Dr. Karl B. Eickley,
316 Michigan St., Toledo 5, Ohio.

American Association on Mental Deficiency, Cleveland, Nov. 28-Dec. 1.
Dr. Nell A. Dwyer, Box 51, Mansfield Depot, Conn., Secretary.

American Ophthalmological Society, Hot Springs, Va., Nov. 12-14.
Dr. Walter S. Atkinson, 129 Clinton St., Wittertown, N. Y., Secretary.

American Society of Anesthetists, New York, Dec. 12-13. Dr. McKim L.
Phipps, 745 Fifth Ave., New York 22, Secretary.

American Society of Tropical Medicine, Cincinnati, Nov. 12-15. Dr.
Joseph S. D'Antonio, Tulane Ave., New Orleans 15, Secretary.

Central Society for Clinical Research, Chicago, Nov. 23. Dr. Carl A.
Helford, 602 S. LaSalle Ave., St. Louis 10, Secretary.

Indiana State Medical Association, French Lick, Nov. 6-8. Mr. Thomas A.
Hendricks, 23 E. Ohio St., Indianapolis 4, Secretary.

North Pacific Pediatric Society, Portland, Ore., Dec. 1. Dr. Abels B.
Johnson, Cobb Bldg., Seattle 1, Washington, Secretary.

Puerto Rico Medical Association of San Juan, Dec. 11-16. Dr. Rafael A.
Vila, P. O. Box 3866, San Juan, Secretary.

Southern Medical Association, Cincinnati, Nov. 12-15. Mr. C. P. Loring,
Empire Bldg., Birmingham 3, Alabama, Secretary.

Southern Surgical Association, Hot Springs, Va., Dec. 4-6. Dr. Alfred
Black, Johns Hopkins Hospital, Baltimore 5, Secretary.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

CALIFORNIA

Considerations Governing Location of Physicians in California.—With the approval of the Council of the California Medical Association, the state chairman for the physicians Procurement and Assignment Service, Dr. Harold A. Fletcher, San Francisco, has sent to the chairmen of all county committees on Procurement and Assignment Service and to the secretaries of all county medical societies a proposal for aiding resumption of private practice by physicians who were formerly in California. The policies have been developed on the assumption that every physician in California who served in the military forces deserves protection and help in becoming reestablished in his former location. It assumes further that, "until these men have had an opportunity to return to their former locations, every effort should be made to keep new physicians from locating in those places where their presence might seriously disturb the rehabilitation of the physician not yet released."

The proposal states that

The state chairman of Procurement and Assignment Service still has the responsibility of classifying physicians as essential or nonessential on the advice obtained from his county committees and other sources. The Procurement and Assignment Service has no authority to tell a physician that he can or cannot or must or must not locate anywhere. However, during the emergency, almost all county societies voluntarily passed regulations that, during the emergency, no new physician would be considered eligible to membership in the county society unless he was classified as essential by the Procurement and Assignment Service, as the Procurement and Assignment Service was and is the only agency authorized to so classify physicians as essential or nonessential. The county medical societies are now rightfully taking the stand that the emergency will not be over until there is more or less complete demobilization and there is a more or less complete return of physicians to their former location. These societies are therefore rightfully continuing to consider a physician ineligible who moves into a new location in which he is not classified as essential by Procurement and Assignment Service. This is of greatest importance, as you all know of the forecast of the intended location of thousands of physicians in California who previously practiced in other states.

The following policies should be followed, giving careful consideration to the merits of each case and making these policies flexible and commensurate with the actual needs of the various counties or areas and towns in the counties. The needs of the various locations in the county for medical care should be based temporarily on present needs, assuming that a high percentage of physicians still in the service will have been returned. If there is still a need for more physicians on this basis, room should be made for new physicians, and they should be classified essential if they choose to locate.

1. Physicians returning to former locations are immediately to be considered essential.

2. New physicians coming from previous locations in other states are not to be considered essential except under the necessities of the community as outlined.

3. Physicians formerly practicing in another location in another county in California temporarily must be considered as nonessential to almost the same degree as a physician coming from out of the state. Such physicians should be advised to return to their former locations until the end of the emergency.

4. The group of young physicians who have never practiced anywhere before but who entered the military forces at the end of or during their postgraduate training deserves the greatest care and consideration and help. In many cases these physicians would normally have entered practice in the towns or localities where they lived during their premedical educational years, however, this is naturally very often not the case. Whenever it can be shown that such physicians would normally have located in a particular area on the completion of their education, because of family, social or medical contacts or other reasonably legitimately valid reasons they should be classified as essential and be given every help and consideration in establishing themselves. These young physicians will not in any sense interfere to any great extent with the return to practice of the older men. Exception to this statement may be lack of office space; and, when possible, these young physicians should be taken into association with older men in order to conserve office space. This group as a whole must be considered as the normal replacement of losses from the medical profession, aside from the temporary loss of physicians to the military forces. Preference should naturally be given to young physicians who have lived and been educated in California in their premedical years, regardless of whether they studied medicine in the state or out of the state. However, too much emphasis cannot be given to the importance of helping this group of veterans of this war in becoming established.

It is hoped that county chairmen, as well as secretaries of county societies, will interview personally as many of these returning veterans as possible. A personal interview, frankly stating the aforementioned policies, in almost 100 per cent of the cases will prove that the policies are fair and just, and the physician seeking location will be satisfied that he has been given fair treatment and will express the hope that his own State Procurement and Assignment Service and medical societies are doing as much for their returning veterans as is being done in California. Furthermore, it should be clearly stated that these policies are only for the immediate future and will be abandoned on the termination of the emergency.

GEORGIA

Ninety Years of Age.—Dr. Eugene Rollin Corson, Savannah, recently observed his ninetieth birthday. Dr. Corson graduated at Hahnemann Medical College and Hospital of Philadelphia in 1877.

New Professor of Pediatrics.—Dr. Philip A. Mulherin, Augusta, has been appointed professor and chairman of the department of pediatrics at the University of Georgia School of Medicine, Augusta. He will succeed the late Dr. Claude M. Burpee.

IDAHO

Hospital Under Department of Public Health.—At the request of Governor Charles C. Gossett, Boise, the Idaho Department of Public Health has taken temporary control of the State Hospital, South, at Blackfoot. Dr. Lynn J. Lull, Boise, medical consultant of the state health department, will be acting medical superintendent in place of Dr. George R. Smith, Boise, former director. These changes result from recent investigation by a committee appointed by Governor Gossett following charges of mismanagement against this institution. The governor has stated that, if any criminal offenses have been committed in connection with the management of the institution, the matter will be turned over to the grand jury.

ILLINOIS

Communicable Diseases Control Regulations Revised.—The rules and regulations of the Illinois department of public health for the control of communicable diseases have been revised and made effective as of September 1. The current revision consists in the main of a deletion of obsolete material and an application of those principles of communicable disease control which have been shown by experience to be effective. Favus, pellagra and lymphocytic choriomeningitis were dropped from the list of reportable diseases, while food infections (salmonellosis), toxoplasmosis, meningococcemia, ringworm of the scalp and virus pneumonia were added. Scarlet fever and all other hemolytic streptococcus infections of the upper respiratory tract are now grouped together and subjected to some control measures. A distinction is now made between food infections and food poisoning. The former term refers to those cases of gastroenteritis caused by salmonella and related organisms, while the latter refers to botulinus and staphylococcus food poisonings. The duration of quarantine in scarlet fever and poliomyelitis has been reduced from 21 days to 14 days. Household contacts to cases of meningitis and scarlet fever, may, with permission of the local health authority, be removed from the premises to remain away for the duration of the isolation period and no further restrictions are placed upon their activities. Important changes have been made in the regulations for the control of tuberculosis. It is now required that all open cases of this disease be hospitalized whenever sanatorium facilities are available at public expense. Patients who refuse hospitalization or who leave a sanatorium against medical advice are required to be quarantined. Whenever sanatorium facilities are not available at public expense, the patient must be isolated at home. Considerable revision has been made in the rules governing the conduct of funerals when death has occurred from a communicable disease. Sealed caskets are not required unless the death was from smallpox, cholera, psittacosis or plague. Public funerals may be held regardless of the cause of death, provided only that the funeral is not held from premises wherein are residing contacts who are required to be quarantined. Private services, however, may be held in such instances.

Chicago

Phi Rho Sigma Scholarship Awards.—On October 2 the first Phi Rho Sigma awards were presented at the founders' day convocation of Northwestern University Medical School. The presentation was made by Dr. Howard B. Carroll, president of the medical division, Northwestern University Alumni Association, and president of the Alpha Association of Phi Rho Sigma fraternity. The first award, consisting of \$100 and a certificate, given to the student who has maintained the highest scholastic average during his first three years at Northwestern University Medical School, went to Mr. Edward V. Johnston. The second award, consisting of a framed certificate, offered to the national medical fraternity at the medical school having thirty or more active members enrolled as regular students which has maintained the highest scholastic average during the preceding year, was given to Phi Delta Epsilon. The third award, consisting of \$50 and a certificate given to the man in the winning fraternity who has been chosen by his fraternity as the student to have contributed most toward winning the

award, was presented to Mr. Nelson Lionel Portnoy, who was selected by Phi Delta Epsilon. The awards were established last year to stimulate scholarship in the medical school among the organization groups as well as among the individual students (*THE JOURNAL*, Nov. 18, 1944, p. 770). They were established by Dr. George James Dennis, who wished during his lifetime to remain anonymous as a donor. In accordance with the wish of Dr. Dennis, a tablet executed by Miss Mary M. Webster, sculptress, has been placed in the Archibald Church Library as a reminder of the objective of the awards.

INDIANA

State Medical Meeting.—The ninety-sixth annual session of the Indiana State Medical Association will be held at French Lick, November 6-8, under the presidency of Dr. Neslen K. Forster, Hammond. Included among the speakers will be:

Dr. John Ralston Lindsay, Chicago, Ménière's Syndrome.
Lieut. Col. Truman G. Blocker Jr., M. C., Problems of Maxillofacial Surgery, World War II.
Dr. Loring T. Swain, Boston, Arthritis.

There will be a panel discussion on "The Disabled, the Physician and Employment" with Dr. Carl M. Peterson, Chicago, Secretary, Council on Industrial Health, American Medical Association, Chicago, as the moderator; participants will include:

J. R. Crawley, director, vocational rehabilitation, Indianapolis.
Dr. Earl H. Hare, chief medical officer, Veterans Administration Facility, Indianapolis.
Dr. Harley L. Krieger, medical director, Ford Motor Company, Detroit.
Dr. Harold A. Vonachen, medical director, Caterpillar Tractor Company, Peoria, Ill.
Dr. Eli S. Jones, Hammond.
Dr. Creighton Barker, executive secretary, Connecticut State Medical Society, New Haven.

A war participation luncheon will be addressed by Major Gen. George F. Lull, deputy surgeon general, Washington, D. C., on "Repercussions" and Watson B. Miller, federal security administrator, Washington, "The Medical Profession Today and Tomorrow." The annual banquet will be addressed, among others, by Ralph E. Gates, governor of Indiana, on "Public Health in Indiana." The women's auxiliary to the state medical association will hold its meeting, November 6-7.

KENTUCKY

State Medical Meeting in Lexington.—The ninety-fifth annual meeting of the Kentucky State Medical Association, designated the D. Newton Porter Memorial, will be held at the Phoenix Hotel, Lexington, October 29-31, under the presidency of Dr. Oscar O. Miller, Louisville. Among the out of state speakers will be:

Dr. Vilray P. Blair, St. Louis, Fundamentals of Plastic Surgery.
Col. Howard Rush, M. C., Washington, D. C., Rehabilitation: A Medical Challenge.
Major William McDonald Ewing, M. C., Recent Trends in Orthopedic Surgery.
Major Emory L. Shidlett, M. C., X-Ray Diagnosis in Reconstruction Surgery of the Wounded Abdomen.

The oration in medicine will be delivered by Dr. David G. Miller Jr., Morgantown, on "The Future of the Rural Practitioner" and the oration in surgery by Dr. Richard T. Hudson, Louisville, on "Bachelache." At a public meeting Tuesday evening, October 30, Dr. J. Watts Stovall, Grayson, will deliver the President's Address on "The Country Doctor, Past and Present." Other speakers will be Dr. Morris Fishbein, Editor of *The Journal*, "Medicine in the Postwar World"; Dr. Andrew S. Brunk, Detroit, "Prepayment Medical Service," and Mr. Thomas A. Hendricks, Secretary of the Council on Medical Service and Public Relations, American Medical Association, on activities of the council.

MASSACHUSETTS

Stephen Rushmore Retired as Dean of Middlesex.—Dr. Stephen Rushmore was recently retired as dean of Middlesex University School of Medicine, Waltham. The action was taken by vote of the trustees of the university and was worded to take effect immediately, according to the *New England Journal of Medicine* September 27. Dr. Rushmore will devote himself to the practice of obstetrics and gynecology.

Prize Subscription Goes to Tufts Student.—The annual prize subscription offered by the *New England Journal of Medicine* for the best undergraduate contribution to the *Tufts Medical Journal* has been awarded to Eugene G. LaForet for his paper on "Medical Aspects of Submarine Warfare," which appeared in the March 1945 issue. The paper "Myasthenia

Gravis: A Complete Review," by Albert M. Starr and Banice M. Webber received honorable mention; it appeared in the January 1945 issue. According to custom, these students will be given a two year and a one year subscription to the *New England Journal of Medicine*, respectively.

MINNESOTA

Dr. Ridgway Said to Be State's Oldest Practicing Physician.—Dr. Alfred M. Ridgway, Amundale, is credited by *Minnesota Medicine* with being the oldest practicing physician in the state both in age and in term of service. Dr. Ridgway was born in 1862, graduated at the University of Minnesota Medical School, Minneapolis, in 1890 and has been practicing fifty-five years. *Minnesota Medicine* said that Dr. Ridgway not only keeps regular office hours but takes night calls.

Dr. Pearce Named Tuberculosis Control Officer.—Dr. Naboth O. Pearce, Minneapolis, has been appointed tuberculosis control officer in the Minnesota Department of Health to direct a statewide tuberculosis program. The work, which will be financed by a federal grant of \$100,000, will be supplemental to activities now carried on by Dr. Walter J. Mareley, Minneapolis, in the division of preventable diseases, by the local health departments and the Christmas Seal organizations. The objective of the program is to discover incipient cases of tuberculosis.

MISSISSIPPI

Twenty-Five Years as Health Director.—Dr. Rosier D. Dedwylder, Cleveland, recently completed twenty-five years of service as director of the Bolivar County health department, with headquarters in Cleveland. Dr. Dedwylder gave up his private practice in 1912 to work with the state board of health and the Rockefeller Foundation in a study of hookworm in the south. He subsequently carried out investigation of malaria and malaria control. On July 1, 1920, Cleveland was selected for the first full time health department in the state and one of the first in the South and Dr. Dedwylder was named health director.

MISSOURI

John Auer Lecture.—Dr. Walter C. Alvarez, Rochester, Minn., delivered the second annual John Auer Lecture at the St. Louis University auditorium, October 10, on "Helpful Hints for the Understanding of Puzzling Pains." The lectureship is an annual function of St. Louis University School of Medicine and is sponsored by Lambda chapter of Phi Beta Pi medical fraternity. It was instituted in July 1944 in honor of Dr. John Auer, professor of pharmacology at St. Louis University.

Gross Prize Goes to Robert Elman.—The Philadelphia Academy of Surgery announces that the Samuel D. Gross prize for 1945 in the amount of \$1,500 has been awarded to Dr. Robert Elman, St. Louis, for his essay entitled "Parenteral Alimentation in Surgery with Special Reference to Protein and Amino Acids." Others who submitted essays may arrange for their return, if desired, by communicating with Dr. Calvin M. Smyth Jr., Methodist Hospital, Broad and Wolf streets, Philadelphia 48.

NEW JERSEY

Personal.—Dr. Joseph P. Holt, Louisville, associate professor of physiology at the University of Louisville School of Medicine, has been appointed director of research in the medical department of the Standard Oil Company, New Jersey, according to *Science*, September 28. —Edward A. Stiles, secretary of the National Rehabilitation Association, who was director of vocational rehabilitation in Vermont for nearly eight years, has been appointed program director of the state rehabilitation commission. Mr. Stiles succeeds Joseph Spitz, who resigned recently.

Remington Medal Goes to Pharmaceutical Chemist.—Joseph Rosin, pharmaceutical chemist of Plainfield, has been announced as the recipient of the 1945 Remington medal of the New York Branch of the American Pharmaceutical Association. In naming Mr. Rosin to receive the medal, the committee on award cited his work as "foremost American authority on chemical reagents" and stated that the Pharmacopoeia and National Formulary, the two official books of standards for medicines in this country, "are today more indebted to Mr. Rosin for the excellent quality of their chemical standards than to any other person."

ALASKA

Members of Alaska Board of Health.—Four residents of Alaska, one from each judicial division, were Dr. Dwight L. Cramer, Ketchikan; George Preston Sr., Fairbanks; Mrs. Katherine Kehoe, Nome, and Rev. Rolland Armstrong, Anchorage.

GENERAL

Report of Infantile Paralysis Foundation.—The annual report for the year ended May 31, 1945 covering the activities of the National Foundation for Infantile Paralysis has recently been released. The report, among other things, discusses the disbursements of the foundation to embrace research projects to various institutions.

Sociologic Foundations of the Psychiatric Disorders of Childhood.—The Twelfth Institute on the Exceptional Child of the Child Research Clinic of the Woods Schools, Langhorne, Pa., November 2, will be devoted to the theme "Sociological Foundations of the Psychiatric Disorders of Childhood." The institute will be held at the Amphitheatre, Duke University, Durham, N. C., in collaboration with the Duke University School of Medicine.

New Periodical on Obstetrics and Gynecology.—Dr. Emil Novak and Dr. Nicholson J. Eastman, Baltimore, the editors, announce the publication of a new abstract periodical, *Obstetrical and Gynecological Survey*. It will cover the entire medical periodical literature, both foreign and domestic, and will appear bimonthly beginning in February 1946. Nine hundred pages per year will be published and the subscription price will be \$9. The Williams and Wilkins Company, Baltimore, will be the publishers.

Association for the Advancement of Science.—The American Association for the Advancement of Science will hold a meeting in St. Louis, March 27-30. This will be the first peacetime and really full-scale meeting of the association since the Philadelphia meeting in December 1940. It is expected that researches that have been accumulating during five years of war will now be made generally public. The advances in laboratory equipment and supplies and new books on science will be presented at a science exhibit.

Journal Changes Hands.—The *Nervous Child* has been bought by its founder and editor in chief, Ernest Harms, from its previous owner, Grune & Stratton Medical Publishers of New York. The *Nervous Child* will be produced from now on by a new publishing house, Child Care Publications, New York, which has been created for this purpose. The same publishing house will start to issue during 1946 another periodical entitled the *Journal of Child Psychiatry*, devoted to unsolicited contributions in the field of mental disease in children.

Hospital Commission Stimulates Survey Action.—There are now twenty states and the District of Columbia which have under way surveys of their hospital facilities as a result of activities of the Commission on Hospital Care, a nongovernment public service committee to study hospital surveys in the United States, it was announced October 8. Surveys are now in progress in Washington, Idaho, Montana, Wyoming, North Dakota, Minnesota, Iowa, Kansas, Oklahoma, Wisconsin, Illinois, Michigan, Indiana, Tennessee, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New Jersey and the District of Columbia. Surveys have not yet started but have been officially authorized in Oregon, New Mexico, Arkansas, Florida, North Carolina, Virginia, West Virginia, Delaware and New York, and surveys are being planned in California, Nevada, Arizona, Colorado, South Dakota, Nebraska, Texas, Missouri, Louisiana, Mississippi, Ohio, Pennsylvania, Kentucky, South Carolina and Connecticut. Surveys have been completed in Utah, Alabama, Georgia and Maryland.

Palestine to Have Medical School.—The Hebrew University and Hadassah, the Women's Zionist Organization of America, will build a nonsectarian medical school on Mount Scopus in Jerusalem. It is planned to raise four million dollars in a two year countrywide campaign to begin immediately. Campaign headquarters have been opened at 16 East 48th Street, New York. The goal of the financial drive will not only meet the cost of construction, equipment and five year maintenance of the school, which will be known as the Hebrew University-Hadassah Medical School, but will provide an additional 100 beds in the Rothschild-Hadassah Hospital, a part of the Hadassah-University Medical Center. The increase will bring the total bed strength of the hospital to

400. Dr. Jonas S. Friedenwald, associate professor of ophthalmology, Johns Hopkins University School of Medicine, Baltimore, is chairman of a Hadassah sponsored American committee on medical education. The plans call for the construction of three main buildings, with provision for future expansion, and the use for certain departments of the existing Nathan Ratnoff Building, which now houses the postgraduate medical school of the university. In addition, the present departments and laboratories of the university and medical center, many of which will be enlarged, will become a part of the proposed school. The new buildings will be erected a short distance from the university and close to the medical center and will be of an architectural design harmonious with the modern style of the group of medical center structures. It is hoped soon to appoint an administrative officer of the medical school and give him the opportunity to study administrative methods in selected medical schools in the United States and England.

Prevalence of Poliomyelitis.—Reports of cases of poliomyelitis for the week ended October 20 have been received from the division of public health methods, U. S. Public Health Service, as follows:

	Oct. 20, 1945	Oct. 21, 1944		Oct. 20, 1945	Oct. 21, 1944
New England			South Carolina...	3	1
Maine	2	0	Georgia	10	6
New Hampshire...	1	2	Florida	9	1
Vermont	2	4	East South Central		
Massachusetts ...	27	32	Kentucky	3	11
Rhode Island.....	0	1	Tennessee	17	2
Connecticut	16	12	Alabama	3	0
Middle Atlantic			Mississippi	4	1
New York.....	66	259	West South Central		
New Jersey.....	43	26	Arkansas	3	1
Pennsylvania	37	48	Louisiana	10	3
East North Central			Oklahoma	11	2
Ohio	23	49	Texas	18	3
Indiana	19	7	Mountain		
Illinois	42	19	Montana	7	1
Michigan	14	23	Idaho	0	2
Wisconsin	52	15	Wyoming	1	0
West North Central			Colorado	3	0
Minnesota	14	26	New Mexico....	0	3
Iowa	18	13	Arizona	1	2
Missouri	17	13	Utah	5	0
North Dakota.....	0	0	Nevada	0	0
South Dakota.....	0	0	Pacific		
Nebraska	5	3	Washington	15	10
Kansas	14	1	Oregon	1	11
South Atlantic			California	46	15
Delaware	0	3	Total.....	617	722
Maryland	8	19	First 42 weeks:		
Dist. of Columbia	4	9	1945 and 1944..	11,462	16,856
Virginia	9	28	Median, 1940-1944..	7,949	
West Virginia....	3	15			
North Carolina...	11	20			

FOREIGN

Work Continues on Paderewski Memorial.—The Paderewski Memorial Hospital, located at the University of Edinburgh, Scotland, will continue attached to the university for another year, according to the *Polish Review*, August 23. The hospital was organized at the University of Edinburgh by the Polish School of Medicine and has cared for 62,392 outpatients and 30,000 inpatients since its founding in 1941. There are twenty-three professors and lecturers and twenty-four doctors attached to the Polish Medical Center in Edinburgh. Dr. Anthony T. A. Jurasz is director of the hospital. Credit for the start of a library at the hospital is given to Mrs. Herbert M. Woollen, Indianapolis, head of the Indiana section of the Paderewski Testimonial Fund. The national group set up a committee which has been active in collecting and financing the purchase of books for the library. The hospital was named for Ignace Jan Paderewski, who was active in the welfare of his people. On his death in June 1941 national feeling indicated that the best memorial to his memory would be a much needed hospital for Polish forces stationed in the British Isles outside of Edinburgh. The hospital, made possible by donations from the Paderewski Testimonial Fund, was opened Oct. 17, 1941 (THE JOURNAL, Jan. 3, 1942, p. 61).

CORRECTION

"Air Embolism Following Insufflation During Pregnancy."—In the article by Herbert S. Breyfogle (THE JOURNAL, September 29) appears a statement to the effect that the manufacturer of silver picrate does not publish a warning against the danger of insufflation of air through the vagina in pregnancy. Mr. Ambrose Hunsberger Jr., representative for Wyeth, Inc., points out that all of the literature issued by that company does contain such warnings.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 22, 1945.

Postgraduate Surgical Teaching at the Royal College of Surgeons

The Royal College of Surgeons maintains a library, museum and laboratories for the use of medical graduates from all parts of the world. These facilities are available to fellows and members of the college by right, but they have also been made open, on suitable introduction, to medical graduates who are not members or fellows. They are also open to undergraduates, and a large number of students have used the library during the war, though unfortunately the museum specimens were not available because of the danger of bombing. It is hoped that they will soon be on exhibition again. The college also arranges short courses of lectures on the contents of the museum—the Arnott Demonstrations of Anatomy by Professor Cave and the Erasmus Wilson Demonstrations in Pathology by pathologists and surgeons appointed each year. In addition, the Arris and Gale and the Hunterian lectures provide opportunities for the presentation of original work in anatomy, physiology, pathology and surgery.

In recent years the professors of the college have given an increasing number of lectures, and it has now been arranged that two regular courses shall be given each year on anatomy, pathology and applied physiology by Professors Wood Jones, A. J. E. Cave, John Beattie and R. A. Willis. These courses will deal with the subjects of the primary examination for the fellowship. They are not designed to provide complete and comprehensive instruction in these subjects but to deal with such fundamental aspects as will be selected from time to time. They must not be regarded as classes specially arranged for the examination but are so planned as to be helpful to candidates and also to surgeons by dealing with recent advances in these subjects and their practical application. At present these courses are open to all medical graduates without fees, but later fees may be charged to those who are not members or fellows of the college.

Another innovation is the decision of the council to provide instruction in surgery by courses of lectures designed to assist those engaged in specialist work and those who are preparing for the final examination for the fellowship of the college. These lectures will be free to fellows and members of the college, but others will be required to pay a small fee. The college also awards prizes for meritorious work as well as many fellowships for those who desire to engage in practical work in the museum and laboratories.

Better Health Provisions for Miners

Addressing the South Wales miners' leaders, Mr. Shinwell, minister of fuel and power, said that he was determined that the health of miners should be better safeguarded. His parliamentary secretary would devote special attention to health and safety measures. He had heard from the miners' leaders that young men fought shy of the pits because of the incidence of industrial disease, particularly silicosis, from which 5,810 miners had been certified as suffering during the war. There would have to be more provision for rehabilitating disabled men, including training for other occupations, so that young men would be assured that they would not become unemployable if they incurred any disease. He intended to see that no miner who might be disabled as the result of his work was cast on the scrap heap but that he was trained for other useful employment.

PARIS

(From Our Regular Correspondent)

Sept. 26, 1945.

The Responsibility of the Physician

For the first time the Paris court of appeals has delivered a verdict concerning the physician's responsibility in a blood transfusion case. A physician (the director of a blood transfusion center) who attended a patient with a gastric ulcer was obliged to administer a transfusion of 350 cc. of blood, which was given by one of the regular blood donors assigned to his center. On the same day the blood donor was submitted to the periodic examination, which in this particular center takes place twice every quarter instead of once as officially prescribed. The examination showed a positive Bordet Wassermann reaction, known on the day after the transfusion. Another clinical examination, which followed at once, disclosed the existence of a syphilitic chancre on the blood donor's person.

The arguments of the law court were as follows: Taking into consideration that under the present state of science it is impossible for the physician to be absolutely sure that the donors' blood is pure because syphilis involves a period of incubation, called the "silent period," and taking into consideration that the contract between the patient and the physician obliges the latter to give his patient scrupulous care in accordance with the state of knowledge of science, that Dr. X is still less to be excused for not having taken . . . the necessary precautions, since his patient has expressed his fear of being infected; also that an authoritative section of the medical profession insists on a closer checking of blood donors. Since the customary methods of control are quite insufficient to guarantee the safety of the patient, the physician is fined 200,000 francs.

Miscellaneous

A congress of the French Association for Progress of Sciences will take place October 20 to 26 in Paris for the first time since 1940. Papers will be read on the avitaminoses in deportees' camps by Charles Riehet, on the amazing bacillary variability and its significance from the point of view of general biology by Boyin, Institut Pasteur member of the Académie de médecine, and on radiology in France from 1940 to 1945 by Lacassagne of the Collège de France.

The ninth French congress of gynecology will be held on October 6, 7 and 8, at which uterine fibromas will be discussed.

Marriages

OLIVER HALTOM GRAVES, Jackson, Tenn., to Miss Bettie Frances Gray of Stamford, Texas, at Carlisle Barracks, Pa., August 11.

WALTER GAMWELL WATSON, Trenton, S. C., to Miss Audrey Lynette Rasmussen of Swainsboro in Silver Run, Md., August 29.

PRESTON CALVIN STRINGFIELD JR., Dallas, Texas, to Miss Billie Vaughn Johnson of North Wilkesboro, N. C., September 15.

VERLYNNE VINCENT VOLIN, Lennox, S. D., to Miss Susanne Cronin of Windsor, Ont., Canada, in Detroit, September 8.

CHARLES TEAR FRIED, Long Island City, N. Y., to Dr. Ethel Lieberman of Edmonton, Alta., Canada, recently.

JAMES CARRINGTON FRANCIS, Anniston, Ala., to Miss Virginia Lee Eskridge of Birmingham, July 22.

HAROLD D. WALTZ, Sandusky, Ohio, to First Lieut. Marie Mayse in Reims, France, August 11.

LINCOLN GODFREY JR., Merion, Pa., to Miss Patricia Agnes Greylin in St. Davids, September 1.

CARL N. GRESSLER, McMinnville, Tenn., to Miss Margaret North of Nashville, September 18.

EDWARD SCOTT GOODWIN, Albany, N. Y., to Mrs. Caroline Peltz Kerr of Selkirk, August 4.

Deaths

Robert Levy * Denver; Bellevue Hospital Medical College, New York, 1884; born in Hamilton, Ont., Canada, May 30, 1864; professor of otolaryngology emeritus at the University of Colorado School of Medicine; at various times on the faculty and secretary of the Gross Medical College and the Denver and Gross College of Medicine; chairman of the Section on Laryngology, Otology and Rhinology of the American Medical Association, 1912-1913; past president of the Colorado State Medical Society, Denver County Medical Society and the American Laryngological, Rhinological and Otolological Society; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological Association; fellow of the American College of Surgeons; one of the founders and three times president of the Denver Clinical and Pathological Society, becoming president emeritus; served as a major in the medical corps of the U. S. Army during World War I; major, Officers Medical Reserve Corps, April 1919; specialist certified by the American Board of Otolaryngology; otolaryngologist to the Colorado General Hospital, St. Joseph's Hospital, Denver General Hospital, St. Luke's Hospital and Children's Hospital; otolaryngologist to the National Jewish Hospital, where he had been a member and chairman of the medical advisory board for many years; on April 4, 1934, in recognition of his completion of fifty years in the practice of medicine, his oil portrait was presented to the Medical Society of the City and County of Denver; died July 1, aged 81, of cerebral hemorrhage.

Alexander A. Conrad * Crete, Neb.; John A. Creighton Medical College, Omaha, 1915; born at Crete on April 6, 1890; secretary and past president of the Saline County Medical Society; past vice president of the Nebraska State Medical Association; past president of the Seventh Councilor District of the state medical association, serving as councilor for that district; secretary of the board of education for many years and member at the time of his death; for twenty-six years city physician; served as chairman of the Procurement and Assignment Service for the state, as a member of the Saline County insular board, local surgeon for the Burlington Railroad and for many years physician for Doane College; on the associate staffs of the Bryan Memorial Hospital, St. Elizabeth Hospital and the Lincoln General Hospital, Lincoln, where he died July 9, aged 55, of carcinoma of the pancreas.

James Alexander Waddell * Charlottesville, Va.; University of Virginia Department of Medicine, Charlottesville, 1911; professor of pharmacology, materia medica and toxicology at his alma mater, where he had been secretary of the faculty of medicine from 1915 to 1943, premedical adviser from 1918 to 1924 and chairman of the committee on admissions from 1920 to 1930; secretary of the Charlottesville-University-Albemarle Board of Health from 1923 to 1930; high school principal, 1901-1902; affiliated with the blind department of the Virginia School for Deaf and Blind from 1902 to 1907; epidemiologist, State Department of Health during the summer in 1909 and from 1912 to 1915; member of the Virginia Academy of Toxicology, American Association for the Advancement of Science and the Society for Pharmacology and Experimental Therapeutics; died June 8, aged 67.

G. Graham Watts, San Antonio, Texas; Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, Germany, 1881; honorary member of the State Medical Association of Texas; member of the American Medical Association; served as an ambulance driver in the Franco-Prussian War in 1870 and as an assistant surgeon at Fort Sam Houston during the Spanish-American War; during World War I served in the surgeon's office at Fort Sam Houston; affiliated with the Santa Rosa Infirmary and the Medical and Surgical Hospital; had a part in the establishment in 1895 of the San Antonio Infirmary and in 1903 of the Physicians and Surgeons Hospital, where he died July 11, aged 92, of uremia and generalized arteriosclerosis.

Gilbert Leslie Gosslee, Moorhead, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1903; a captain in the medical corps of the U. S. Army during World War I; for ten years resident director of the State Teachers College; eighth councilor district representative on the state procurement and assignment board; county health officer; served as city health officer; on the staff of St. John's Hospital, Fargo, N. D., where he died July 15, aged 68, of cerebral hemorrhage and myocardial degeneration.

William P. Addison, Shreveport, La.; Memphis (Tenn.) Hospital Medical College, 1899; died July 16, aged 73, of coronary occlusion.

Annie Mary Slate Anderson, Los Gatos, Calif.; M.B., University of London Faculty of Medicine, London, England, in 1892 and M.D. in 1894; died May 28, aged 78.

Charles Edward Anderson, Los Angeles; University of the South Medical Department, Sewanee, Tenn., 1900; died July 11, aged 69, of coronary occlusion.

William Lamar Atkins * Shreveport, La.; University of Louisville (Ky.) School of Medicine, 1916; fellow of the American College of Surgeons; on the staffs of the Shreveport Charity Hospital and the T. E. Schumpert Memorial and North Louisiana sanitariums; died June 16, aged 52, of coronary occlusion.

Horace James Beel, Grand Rapids, Mich.; University of Buffalo School of Medicine, 1909; past president of the Kent County Medical Society; served overseas during World War I; formerly senior attending surgeon at the Butterworth Hospital and visiting surgeon at the Blodgett Memorial and St. Mary's hospitals; died July 14, aged 58, of cerebral hemorrhage and hypertensive heart disease.

Chester Bradley Bliss * Sandusky, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; fellow of the American College of Surgeons; past president of the Ohio Public Health Association; served as president of the staff at the Good Samaritan Hospital; died July 10, aged 71, of myocarditis.

William Charles Brandon, Garfield, Wash.; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; University of Nashville (Tenn.) Medical Department, 1902; served during the Spanish-American War and World War I; died in Colfax, July 4, aged 78, of carcinoma of the bladder.

Hymie Henry Brenner, Minneapolis; University of Wisconsin Medical School, Minneapolis, 1943; an intern at the Mount Sinai Hospital in Cleveland; served a residency at the Minneapolis General Hospital; drowned at Detroit Lakes, July 5, aged 35, when his boat capsized.

Baumont Brown, Sacramento, Calif.; College of Physicians and Surgeons of San Francisco, 1904; for many years on the staff of the Washoe County General Hospital in Reno, Nev.; died July 2, aged 68, of myocarditis due to arteriosclerosis.

Francis Aloysius Campana, Union City, N. J.; Fordham University School of Medicine, New York, 1918; died in St. Francis Hospital, Jersey City, July 6, aged 49, of chronic glomerulonephritis.

William Patrick Cannon, Somonauk, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; served overseas during World War I; district surgeon for the Illinois Central Railroad; died in St. Mary's Hospital, Kankakee, August 6, aged 64.

Covert Ballejo Cooper, Arlington, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1911; member of the American Medical Association; had been affiliated with the North American Aviation plant and on the staff of the Methodist Hospital in Dallas; died June 2, aged 56, of coronary thrombosis.

Fred Fay Dexter, Springfield, Mass.; Harvard Medical School, Boston, 1904; member of the American Medical Association; formerly secretary of the Eastern Hampden Medical Association; served as medical examiner for the Monarch Life Insurance Company; died July 10, aged 66, of heart disease.

Henry August Dirschedl, Pottsville, Pa.; Medico-Chirurgical College of Philadelphia, 1910; member of the American Medical Association; served as a member and president of the city board of health; for many years medical inspector of the public school system; formerly county prison physician and coroner; for many years on the staffs of the Good Samaritan, Pottsville and Warne hospitals; died July 14, aged 71, of coronary thrombosis.

Howard L. Dumble, Hood River, Ore.; National University Medical Department, Washington, D. C., 1893; died in the Hood River Hospital July 6, aged 85, of cerebral hemorrhage and heart disease.

John L. Dunkel, Fremont, Ind.; Medical College of Ohio, Cincinnati, 1896; died in the Leila Y. Post Montgomery Hospital, Battle Creek, Mich., July 10, aged 80, of heart disease.

Rubie Epstein * Trenton, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1924; on the staff of the McKinley Memorial Hospital, where he died July 28, aged 47, of acute cardiac failure and coronary occlusion.

Andrew Joseph Erickson, Chicago; Chicago Medical School, 1921; on the staffs of the Belmont and Walther Memorial hospitals; died in St. Anne's Hospital July 29, aged 58, of injuries received in an automobile accident.

William Bingham Ewing, West Grove, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; owner of the West Grove Hospital, where he died July 31, aged 69, of coronary thrombosis.

Albert Samuel Fay Ⓢ Schenectady, N. Y.; University of Vermont College of Medicine, Burlington, 1896; past president of the Schenectady County Medical Society; consulting physician to the Ellis Hospital; died July 2, aged 72, of carcinoma.

John Richard Frazier, Fort Worth, Texas; Jefferson Medical College of Philadelphia, 1884; served on the Selective Service Board during World War I; past president of the old Fort Worth Medical Society, predecessor of the present Tarrant County Medical Society, serving as president of the latter organization in 1907; first company physician for Swift and Company; died in the Pennsylvania Avenue Hospital June 11, aged 83, of myocarditis and pulmonary edema.

Neil Alexander Gates Ⓢ Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; died in St. Joseph's Mercy Hospital July 16, aged 72, of primary carcinoma of the liver.

Charles Patterson Geddes, New Castle, Pa.; Cleveland University of Medicine and Surgery, 1897; died in the Torrance (Pa.) State Hospital May 26, aged 76, of chronic myocardial disease and arteriosclerosis.

Chesley T. J. Giles, Greenville, S. C.; University of Georgia Medical Department, Augusta, 1899; member of the American Medical Association; honorary member of the South Carolina Medical Association; on the staff of the Greenville General Hospital, where he died July 5, aged 76, of coronary thrombosis.

Horace Mark Hall, Los Angeles; Chicago Medical College, 1883; died July 9, aged 91, of angina pectoris.

William John Hammond Ⓢ East Walpole, Mass.; Harvard Medical School, Boston, 1899; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association, New England Society of Psychiatry and the Association for Research in Nervous and Mental Disease; founder and superintendent of the Westwood Lodge, Westwood; died July 4, aged 75, of pneumonia.

David M. Hestand, Houston, Texas; Baylor University College of Medicine, Dallas, 1914; died July 1, aged 58, of carcinoma of the lung with metastasis to the liver.

Foster Cannon Howard, Baltimore; Maryland Medical College, Baltimore, 1912; served during World War I and in the regular U. S. Army; died June 19, aged 56, of coronary heart disease.

Jesse Headen Inman Ⓢ Bakersfield, Calif.; University of California Medical School, San Francisco, 1929; member of the board of directors and past president of the Kern County Medical Society; member of the American Society of Clinical Pathologists and the American Heart Association; member of the board of the Kern County Tuberculosis Association; on the staffs of the Kern General and Mercy hospitals; died July 15, aged 43, of carcinoma of the descending colon.

U. H. Johnson, Port Richmond, Va.; Medical College of Virginia, Richmond, 1905; died in the Johnston-Willis Hospital, Richmond, July 11, aged 68, of cerebral hemorrhage.

John Paul Keith, Louisville, Ky.; Hospital College of Medicine, Louisville, 1904; member of the Radiological Society of North America, Inc.; on the staff of the Baptist Hospital; died on his farm near Anchorage, June 30, aged 66, of coronary occlusion.

Isaac Celsus Kiser, Piqua, Ohio; Ohio Medical University Columbus, 1897; member of the American Medical Association; also a graduate in pharmacy; served as a member of the state legislature; on the staff of the Memorial Hospital; died June 26, aged 71, of heart disease.

Felix J. Krych, Forty Fort, Pa.; Atlantic Medical College, Baltimore, 1909; member of the American Medical Association; on the staff of the Wyoming Valley Homeopathic Hospital, Wilkes-Barre, where he died June 26, aged 62, of bronchopneumonia.

William Everett Lloyd Ⓢ Columbus, Ohio; Ohio Medical University, Columbus, 1905; in 1917 joined the medical department of the state industrial commission as claims examiner; member of the Columbus Academy of Medicine; died in the University Hospital July 12, aged 67, of chronic myelogenous leukemia.

Howard Kimball Longshore, Glenside, Pa.; Maryland Medical College, Baltimore, 1911; served on the staff of the Hospital of the Woman's Medical College of Philadelphia; died at his summer home in Thousand Islands, N. Y., July 12, aged 62, of coronary thrombosis.

Julius D. Love Ⓢ Philadelphia; Medico-Chirurgical College of Philadelphia, 1893; on the staff of the Mount Sinai Hospital; died July 4, aged 86, of cardiovascular renal disease.

Fay Melville Marsh Ⓢ Ionia, Mich.; Saginaw (Mich.) Valley Medical College, 1900; also a graduate in pharmacy; past president of the Ionia-Montcalm Counties Medical Society; city physician and health officer; for many years physician for the Ionia County Home; on the staff of the Ionia County Memorial Hospital; director of the State Savings Bank of Ionia; died July 2, aged 69, of coronary thrombosis.

Bertrand Frank Marshall, Westbrook, Maine; Dartmouth Medical School, Hanover, N. H., 1888; member of the American Medical Association; honorary member of the Maine Medical Association, which in 1938 presented him with its fifty year service medal; served as city physician, school physician and police commissioner; died June 22, aged 78.

William Thomas McKinney, Louisville, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; medical director of the Kentucky Home Mutual Life Insurance Company; died in St. Joseph Infirmary June 29, aged 77, of endocarditis.

Edgar Paul Murdock Ⓢ Guadalupe, Calif.; Bennett Medical College, Chicago, 1909; on the staff of Our Lady of Perpetual Help Hospital in Santa Maria, where he died June 24, aged 59, of cardiorenal vascular disease.

John Christopher O'Day, Honolulu, Hawaii; National Normal University College of Medicine, Lebanon, Ohio, 1896; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; fellow of the American College of Surgeons; author of two books; died July 2, aged 78, of arteriosclerotic heart disease.

John Howard Prill, Chetek, Wis.; Milwaukee Medical College, 1910; for many years affiliated with various Veterans Administration facilities; died June 15, aged 58, of angina pectoris.

Samuel A. Reynolds, Vashti, Va.; Medical College of Virginia, Richmond, 1887; member of the American Medical Association; died July 8, aged 80, of heart disease.

Amos Elmer Robinson, Leachville, Ark.; University of Tennessee College of Medicine, Memphis, 1915; member of the American Medical Association; past president of the Mississippi County Medical Society; served in the medical corps of the U. S. Army overseas during World War I; on the staff of the Walls Hospital, Blytheville; died in St. Bernard's Hospital, Jonesboro, July 5, aged 57, of heart disease.

John Frederick Stageman, Council Bluffs, Iowa; John A. Creighton Medical College, Omaha, 1903; on the associate staff of the Jennie Edmundson Hospital and the Mercy Hospital, where he died June 20, aged 69, of cerebral hemorrhage.

Dewey Sutton, San Angelo, Texas; University of Louisville (Ky.) Medical Department, 1910; member of the American Medical Association; served in the medical corps of the U. S. Army during World War I; died June 2, aged 61, of cerebral hemorrhage.

Cassell Clark Tucker Ⓢ Greencastle, Ind.; Harvard Medical School, Boston, 1915; awarded British Military Cross for service overseas during World War I; vice president and director of the First-Citizens Bank and Trust Company; on the staff of the Putnam County Hospital, where he died June 6, aged 54, of coronary thrombosis.

John James Tully, Stockton, Calif.; Cooper Medical College, San Francisco, 1886; died in the Stanford Lane Hospital, San Francisco, June 4, aged 82, of arteriosclerotic myocardial failure.

Vivian H. Vandeventer Ⓢ Ishpeming, Mich.; College of Physicians and Surgeons, Baltimore, 1896; served as president and vice president of the Upper Peninsula Medical Society; fellow of the American College of Surgeons; for many years health officer of Ishpeming and chief of the staff of the Ishpeming Hospital; died July 3, aged 73, of cerebral hemorrhage.

Hedwig Maria Ziskoven, Los Angeles; Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, Germany, 1921; member of the American Medical Association; on the staff of the California Hospital; died July 10, aged 50, of tuberculosis.

Correspondence

DERMATOPHYTOSIS AND ONYCHOMYCOSIS

To the Editor:—In reply to Dr. K. P. A. Taylor's criticism (THE JOURNAL, July 7, p. 750) of an article by me on dermatophytosis and onychomycosis (THE JOURNAL, May 12, p. 77), the paper dealt primarily with the cutaneous manifestations of the fungi causing dermatophytosis and onychomycosis rather than with methods of treatment. Only the most important and proved methods of treatment were noted.

Permanent ablation of fungous infected toe nails outlined by Dr. Taylor is a radical measure. The absence of finger nails would subject the patient to lifelong embarrassment. Elimination of the fungi in the nails would not necessarily cure the infection. When toe nails are infected, especially with *Trichophyton purpureum*, there is usually a concurrent infection of the toes and soles. The refugees that he mentioned as being unable to enter the country because of chronic onychomycosis of the *T. purpureum* type were probably still harboring *T. purpureum* in the toes and soles even after ablation of the nails.

I still believe that the more conservative method is preferable, as I mentioned in my paper, though it requires more careful therapy and is time consuming. Of nine toe nails infected with *T. purpureum* in 1 patient within the last year, I have cured seven by this method. First all infected portions of the nail plate are painstakingly removed by clipping and paring. This is followed by the application of salicylic acid to the nail and nail bed, repeating the procedure until a new nail is firmly attached to the nail bed. Strong fungicides are applied periodically until a normal nail has grown in. This treatment may take six months or longer. Concomitant infection of the skin is treated at the same time.

Dr. Louis Tobin of the New York Skin and Cancer Unit has been successful in treating mycotic nails by simple evulsion. The after-treatment includes the application of strong fungicides. He reports cures in 80 per cent of these cases.

Another method mentioned by Dr. Taylor, that of freezing the affected skin areas with ethyl chloride, was tried at the New York Skin and Cancer Unit in a series of cases this year. Our conclusions were the same as those of Drs. J. H. Lewis and W. J. Morginson (Treatment of Trichophytosis with Ethyl Chloride, *Arch. Dermat. & Syph.* 50:243 [Oct.] 1944), who found that "recurrences are experienced in practically all instances within ten days."

Treatment of dermatophytosis and onychomycosis must vary according to the infecting organism and the cutaneous manifestations. Any infection due to *T. purpureum* is a tedious and a difficult one to cure. It is hoped that in the future more effective fungicides may be found to clear these fungous infections more quickly and completely.

ROYAL M. MONTGOMERY, M.D., New York.

RHUS DERMATITIS

To the Editor:—I wish to substantiate the statement of Francis E. Park (THE JOURNAL, August 18, p. 1185) that steaming hot water is an effective treatment for rhus dermatitis.

Thirty years ago while on a horseback trip through the Feather River Canyon I became disabled with poison oak. At an Indian camp the Indians treated me with steaming hot water from a mineral spring. I enthusiastically carried a bottle of the water away with me but later found steaming tap water to be equally effective. Some of my friends have substituted live coals held close or infra-red from bathroom heaters or cigarettes.

The rationale of the treatment may possibly be explained by a detoxification or oxidation of the phenols or catechols in the oils or oleoresins embedded in the skin.

The water should be about 130 F. or slightly over and the application should produce a mild first degree burn. Moderately hot water seems to be useless or merely to aggravate the condition. The treatment is rather heroic, and only small areas can be treated at a time. A sponge stick is useful in applying the heat. I have never used the treatment during the bullous stage of a severe case.

It is doubtful whether this homely treatment will prove popular, owing to the attending discomfort; but it is hoped that the possibility of oxidation or detoxification of poison oak and poison ivy by intense heat or enzymes such as tyrosinase will be subject to further investigation by those best qualified to undertake it.

ROBERT A. POWERS, M.D., Palo Alto, Calif.

TESTS FOR INFECTIOUS HEPATITIS

To the Editor:—In regard to the methylene blue test used in infectious hepatitis, as reported in recent issues of THE JOURNAL, I have made some of the following observations:

One patient with early clinical jaundice of the infectious hepatitis type did not have a positive methylene blue test (5 drops of methylene blue with a still green coloration of the urine).

Patients recovering from infectious hepatitis who showed a negative methylene blue test still had bilirubin in the urine.

Patients not suffering from infectious hepatitis will show a green coloration of the urine with as high as 3 drops of methylene blue before the blue coloration is noted. Normally one does not have bilirubin in the urine.

I have made serial dilutions of an atabrine solution (yellow) and have demonstrated a progressive increase in the number of drops of methylene blue needed to change the solution from green to blue, going even beyond the 5 drop "positive" reaction, depending on how yellow the solution is made.

I believe that the so-called "positive methylene blue test" of the urine as used in infectious hepatitis cases is equivocal.

O. W. HAFFKE, Captain, M. C., A. U. S.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Oct. 6, page 478.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, Nov. 12-14, Part III, New York City, Oct. 15-17; Boston, Oct. 16-17. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written*. Various centers, Jan. 18. Final date for filing application is Oct. 20. *Oral*. Various centers, Oct. 1946. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 24.

AMERICAN BOARD OF DERMATOLOGY & SYPHILOLOGY: *Written*. Group B, April 22. *Oral*. Group A and B, June 6-8. Final date for filing application is March 1. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral*. Chicago, May 27. Final date for filing application is Feb. 1. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written*. Part I, Various centers, Feb. 2. Final date for filing application is Nov. 1. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Jan. 18-22 and Los Angeles, Jan. 28-Feb. 1. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Spring 1946. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Oct. 19. *Oral*. Atlantic City, Dec. 7-8. Sec., Dr. C. A. Aldrich, 115½ First Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Part I, Spring 1946. Final date for filing application is Dec. 1. Sec., Dr. J. Stewart Rodman, 225 South 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written*. Various centers, Dec. 9. *Oral*. Chicago, February 1946. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

35:675-782 (July) 1945. Partial Index

- Role of Beta Hemolytic Streptococci in Common Respiratory Disease. E. Strauss.—p. 675.
- Bacteria "Count"—Estimate Capable of Accurate Interpretation. J. D. Brew and R. S. Breed.—p. 683.
- World War I and Tuberculosis: Statistical Summary and Review. G. J. Drolet.—p. 689.
- Problems of Morbidity Reporting from Standpoint of National Public Health Activities. G. S. J. Perrott.—p. 698.
- *Applications of Complement Fixation Test in Study of Rickettsial Diseases. Ida A. Bengtson.—p. 701.
- Mental Hygiene in Public Health Program: Its Implications. C. F. McClintic.—p. 708.

Complement Fixation Test in Rickettsial Diseases.—

Bengtson says that since 1941 there has been an opportunity to make use of the complement fixation test for rickettsial diseases on a large scale at the National Institute of Health. Over 10,000 tests have been made. The complement fixation test was found to furnish evidence of rickettsial infection earlier than the Weil-Felix test in 23.9 per cent of the human serums tested. From an epidemiologic standpoint the complement fixation test is superior to the Weil-Felix test because a positive complement reaction persists longer than does a positive Weil-Felix reaction. Low titers are significant in the complement fixation test, as indicated by negative results on a number of nonrickettsial and normal serums.

California and Western Medicine, San Francisco

63:1-62 (July) 1945

- Thomas M. Logan, Organizer of California State Board of Health and Co-Founder of California Medical Association. G. P. Jones.—p. 6.
- Rheumatoid Spondylitis, with Special Reference to Early Diagnostic Criteria. A. J. Present.—p. 10.
- Voluminous Ventral Hernia: Surgical Regimen for Enormous Incisional Eversion: Report of Case. M. G. Henry.—p. 13.
- Abscess of Tongue. C. V. Bernardin.—p. 16.

Journal of Allergy, St. Louis

16:165-208 (July) 1945

- Transport of Antigen Through Body by Electrophoresis. A. Walzer and H. G. Golub.—p. 165.
- Immunochemistry of Allergens: VII. Study of Homogeneity of Cottonseed-Globulin Preparations by Anaphylactic Reactions. E. J. Coulson, J. R. Spies and H. Stevens.—p. 176.
- Method for Experimental Control of Particle Size of Therapeutic Aerosols. H. A. Abramson and M. Demerec.—p. 184.
- Response of Contact Dermatitis Sites in Atopic Individuals to Subsequent Stimulation with Specific Wheal Inducing Atopogens. M. Grolnick, Katherine L. Bowman and M. Walzer.—p. 188.
- *Nonantigenic Property of Beeswax. L. N. Gay.—p. 192.
- Allergy to Chemicals in Flour: Case of Dermatitis Due to Benzoic Acid. K. A. Baird.—p. 195.

Nonantigenic Property of Beeswax.—

Gay states that no pollen could be identified in crude or filtered beeswax by microscopic examination. Beeswax cannot be kept in solution for intramuscular injection in a concentration greater than 4 per cent wax by weight in peanut oil. In this mixture there is no tendency for the wax to separate from the oil. No reaction occurred by scratch or intracutaneous tests with 4 per cent beeswax-peanut oil mixture in any of the patients who were tested, even though they had clinical hay fever or asthma due to one or more varieties of pollens. The control solutions gave typical reactions. The results of the studies indicate that beeswax, combined with peanut oil, because of its nonantigenic

character, should be an ideal medium for delaying the absorption of penicillin when administered by subcutaneous or intramuscular methods.

Journal Industrial Hygiene & Toxicology, Baltimore

27:147-182 (June) 1945

- Clinical Physiological Observations on Welders with Pulmonary Siderosis and Foundry Men with Nodular Uncomplicated Silicosis. N. Enzer, E. Simonson and A. M. Evans.—p. 147.
- Balances of Fluorine Ingested from Various Sources in Food and Water by Five Young Men: Excretion of Fluorine Through Skin. F. J. McClure, H. H. Mitchell, T. S. Hamilton and C. A. Kinser.—p. 159.
- Polarographic Determination of Toxic Metal Fumes in Air. L. Levine.—p. 171.
- Rapid Wet-Ashing Procedure for Urinalyses. G. S. Winn.—p. 178.

Journal of Nervous and Mental Disease, New York

102:107-220 (Aug.) 1945

- Devie's Disease: Clinical Review and Case Report. S. J. Silbermann.—p. 107.
- Character and Traumatic Syndrome. H. Kelman.—p. 121.
- Treatment of Soldiers Complaining of Backache: Some Observations Concerning Posture and Attitude. H. M. Fox.—p. 154.
- Speech Disorders in World War II: II. Further Studies. W. G. Peacher.—p. 165.
- Electroencephalographic Findings During and After Acute Encephalitis and Meningoencephalitis. I. S. Ross.—p. 172.
- Hippuric Acid Liver Function Test in Schizophrenia. Y. T. Wong.—p. 183.
- Some Neurologic and Neurovegetative Phenomena Occurring During and After Electroshock. H. H. Fleischacker.—p. 185.
- Note on Initial and Succeeding Voltages to Obtain Grand Mal in Electroshock Therapy. J. H. Huddleson and L. Lowinger.—p. 191.

Military Surgeon, Washington, D. C.

97:1-84 (July) 1945

- Health Makes Wealth for Americans. G. C. Dunham.—p. 1.
- Gleanings from Medical Service of General Hospital. J. S. Sweetney.—p. 7.
- Late Manifestations of Abdominal Wounds of War. M. G. Beaver and R. S. Smith.—p. 13.
- Parasites and War. G. Lajage.—p. 23.
- Use of Animals in Present War. R. S. MacKellar Jr.—p. 30.
- Observations on Mumps in Soldiers. A. T. Haerem.—p. 33.
- *Carbon Tetrachloride Poisoning: Report of 20 Cases with One Death. S. M. Dillenbergh and C. M. Thompson.—p. 39.
- Sanitary Engineering Activities of Corps of Engineers. B. A. Poole.—p. 44.
- Special Sanitary Engineering Problems. J. B. Baty.—p. 51.
- Suggestion in Treatment of Dermatomyecosis. R. L. Fruin.—p. 56.
- Local Use of Penicillin Preparations in Cutaneous Diseases.—p. 57.
- Hysterical Wry Neck of Soldiers. B. B. King.—p. 59.
- Atypical Reaction to Quinine Therapy. C. C. Greene.—p. 61.
- Pitfalls in Diagnosis of Primary Syphilis. J. M. Spatz.—p. 64.

Carbon Tetrachloride Poisoning.—

Dillenbergh and Thompson report observations on 20 patients with carbon tetrachloride poisoning, who used the solvent in a confined compartment of a submarine without adequate ventilation. Only 2 men worked with the solvent; the rest inhaled the fumes by being in or near the compartment over a period of two days. The initial symptoms in all 20 cases were headache, malaise, backache, anorexia, nausea and vomiting. Albuminuria was present in 11 cases on admission. These 11 patients were admitted to the dispensary for both the albuminuria and the severe gastrointestinal symptoms. The other 9 were treated aboard the submarine tender and recovered without complications in four days. Kidney damage was present in 11 cases on admission to the dispensary. This was manifested by slight albuminuria to anuria, which persisted for several days. The 4 severe cases presented a typical toxic nephrotic syndrome, as evidenced by puffiness and swelling of the soft tissues of the face, hands and feet. One patient developed acute pulmonary edema while apparently on the road to recovery. This was a late complication occurring nine days after exposure and terminated fatally despite all treatment. There were positive roentgen findings in the lungs of the 4 severe cases. The histories and roentgenograms of the 4 critically ill patients are presented with the necropsy and microscopic findings in the fatal case. Microscopic examination revealed severe damage to the liver, kidney and adrenal. Patients were treated symptomatically along with intravenous dextrose and calcium gluconate. Carbon tetrachloride is dangerous because it can be absorbed through the skin, inhaled and ingested. It is essential that instructions be given regarding its use.

New England Journal of Medicine, Boston

233:173-198 (Aug. 9) 1945

- *Senile Psychosis and Pellagra Report of 2 Cases H A Meyersburg —p 173.
- Acute Infectious Lymphocytosis in Young Adults P A Duncan —p 177.
- *Pediculosis Corporis and Leg Ulcers G L Morris —p 180
- Mycotic Infections (concluded). J. G. Downing and N F Conant —p 181.
- Gaucher's Disease Ruptured Spleen C Miller —p 189
- Eclampsia E M Chapman —p 194.

Senile Psychosis and Pellagra.—Meyersburg says that several patients with psychoses of the senile type have been observed to improve after therapy with niacin, thiamine, riboflavin and substances rich in the vitamin B complex. Review of their records has shown 2 with atypical pellagra. In the first patient, a woman aged 55, the late manifestations were like those of a vascular disturbance, although the earlier ones were neurasthenic. The latter disturbances, the memory defects and the confabulatory episodes resembled the Korsakoff syndrome, which may occur in either the senile psychoses or in pellagra. The episodes of stupor were similar to those described in pellagrins. The skin lesions were those of riboflavin deficiency, and the mucosal alterations were the combined effect of several deficiencies. The response to treatment puts this case definitely in the pellagra group. The effect of nutritional inadequacy in a patient with a subclinical encephalopathy of the combined senile and vascular type was illustrated by the second patient, a man aged 78. The reestablishment of adequate neurologic function and the concurrent disappearance of the somatic signs of deficiency under therapy indicate that the neuropsychiatric dysfunction was related to biochemical imbalance. The neuropsychiatric manifestations of pellagra usually appear after dermal, oral or gastrointestinal manifestations have developed. In a small proportion of cases, however, neuropsychiatric signs alone are manifest. The senile pellagrous type of encephalopathy may respond well to treatment with crystalline vitamin B products or with natural vitamin B concentrates. The recognition of this group of cases may permit effective therapy. The maintenance of an optimal dietary by the normal aged person as well as by the senile invalid is of primary importance.

Pediculosis Corporis and Leg Ulcers.—Morris stresses that multiple ulcers of the legs are frequently due to infestation of the clothing with body lice. Search for such parasites should be made in all suspicious cases. In a large hospital clinic ulcers of the leg due to pediculosis corporis rank second in frequency only to the so-called stasis (varicose) ulcers. Such lesions respond well to eradication of the body lice followed by the local application on alternate days of a 1 per cent aqueous solution of gentian violet and 2 per cent allantoin in a water soluble emulsion base.

Ohio State Medical Journal, Columbus

41:685-780 (Aug.) 1945

- Experiences with Photorentgen Method in Chest Surveys: Analysis of 156,000 Examinations A. Fine and T. B. Steinhilber —p 709
- Factors in Reducing Recurrence Rate in Therapy of Varicose Veins. R. K. Finley and J. M. Shaffer —p 711.
- Clinical Use of Anticoagulants Helen I Glueck —p 714
- Anatomic and Physiologic Principles Underlying Plastic Surgery of Nose R. S. Rosedale —p 724.
- Adrenal Sympathetic Syndrome Associated with Paraganglioma of Organ of Zuckerkandl E. I. Koster. —p 729.
- Fifty Years of Cleveland Medical Library. R. M. Stecher —p 732

Psychosomatic Medicine, Baltimore

7:195-256 (July) 1945

- Identification Mechanisms in Coronary Occlusion J. A. Arlow —p 195
- Towards Clarification of Concept of Emotion Nina Bull —p 210
- Quantification of Psychophysiological Measures M. Sherman and H. Jost —p 215
- Personality and Psychosomatic Disturbances in Patients on Medical and Surgical Wards. Survey of 450 Admissions Bela Mittelman, A. Weider, K. Brodman, D. Wechsler and H. G. Wolff —p 220

South Carolina Medical Assn. Journal, Florence

61:157-185 (July) 1945

- Ambulatory Treatment of Varicose Veins W. H. Prioleau —p 157
- Aneurysm of Abdominal Aorta Case Report T. M. Northrop —p 159
- Bacteriologic and Other Studies in Public Aspects of Gonococcal Infection H. Postwright —p 160

Surgery, St. Louis

18:1-132 (July) 1945

- Factors Influencing Trends in Anesthesia J. S. Lundy, C. Adams and T. H. Seldon —p 1
- Explosions in Anesthesia Review of Literature F. Cole —p 7.
- Cyclopropane—Personal Evaluation R. M. Waters —p 26
- Prolonged Anesthesia R. T. Knight and J. W. Baird —p 33
- Intercostal Nerve Block S. Belinkoff —p 37
- Notes Regarding Use of Intravenous Sodium Pentothal Anesthesia in Major Surgical Cases C. H. Shutt —p 43
- Curare in Anesthesia S. C. Cullen —p 45
- Anesthetic Agents as Factors in Circulatory Reactions Induced by Hemorrhage B. W. Zweifach, S. G. Hershey, E. A. Rovenstine, R. E. Lee and R. Chambers —p 48
- Pulsion Diverticulum of Hypopharynx at Pharyngoesophageal Junction Surgical Treatments in 140 Cases S. W. Harrington —p 66
- Closure of Bronchial Stump Following Lobectomy or Pneumonectomy R. H. Sweet —p 82.
- Ligation of Inferior Vena Cava. R. O. Northway and R. W. Buxton —p 85 *
- *Osteomyelitis of Skull—Its Treatment with Penicillin and Repair of Defect with Tantalum M. T. Schnitker and W. D. McCarthy —p 94
- Radical Duodenopancreatectomy Report of Successful Resection of Carcinoma of Duodenal Diverticulum Involving Head of Pancreas J. E. Strode —p 115

Osteomyelitis of Skull.—According to Schnitker and McCarthy, osteomyelitis of the frontal bone, secondary to frontal sinusitis, is one of the most fatal of surgical diseases. The primary infection, acute sinusitis, is fairly common but the complication of frontal osteomyelitis is relatively uncommon. In the fulminating type manifested by pitting doughy edema of the forehead it is imperative to do wide radical removal of the diseased osteomyelitic bone. Sulfonamide drugs have been advocated in addition to operation, but these drugs have their limitations. Penicillin has revolutionized the treatment. It is an excellent bacteriostatic agent; it overcomes the infection rapidly and limits its spread, permitting early operation with primary closure of the wound and rapid recovery. Until recently the inverted T incision was used with open packing of the wound and subsequent deforming scar of the forehead. With the use of penicillin a coronal incision is preferable, giving a more adequate exposure and allowing the removal of the diseased bone in one piece, so avoiding a deforming scar of the frontal scalp. When healing is complete and all infection has disappeared, repair of the underlying bone defect with insertion of a tantalum plate is carried out easily. The restoration of the smooth contour of the forehead is accomplished. The authors report 3 cases.

Texas State Journal of Medicine, Fort Worth

41:177-226 (Aug.) 1945

- Prostatic Hypertrophy: Operative Procedures for Its Relief. J. R. Reagan and Q. B. Lee —p 183.
- Facts and Figures on Cancer of Cervix and Endometrium and Incidence of These Diseases in Metropolitan City of Texas T. R. Hannon —p 186
- Treatment of Carcinoma of Cervix Based on Clinical and Cellular Classification. J. D. Weaver —p 191
- Palliative Treatment of Incurable Malignant Disease J. R. Maxfield Jr —p 195.
- Physical Factors in Cancer W. A. Selle —p 197
- Concept of Etiology and Control of Poliomyelitis and Its Complication—Infantile Paralysis W. A. Coole —p 203
- Important Recent Developments in Laboratory Medicine A. E. Rhoden —p 207.
- Glycogen Storage Disease F. Brookshier —p 210
- Orientation of Private Practice and Public Health V. E. Schulze —p 212
- Veneral Disease Control in Camp Bowie G. A. Gray —p 213

Western J. Surg., Obst. & Gynecology, Portland, Ore.

53:217-254 (July) 1945

- Ulcers of Lower Extremities M. A. Howard —p 217
- Sexual Infantilism in the Female R. B. Greenblatt —p 222
- Cervical Pregnancy Report of Case at Seventeen Weeks Gestation H. E. Bowles —p 226
- Medical and Social Problems of Unmarried Mother and Her Child N. R. Kavinoky —p 233
- Possible Use of Kymographic Tracing Instead of Endometrial Biopsy for Determination of Ovulation K. J. Karnak —p 237.
- Gastric Adenomas Pathologic Study J. H. Rientjens and A. C. Broder —p 244

Book Notices

The Extremities. By Daniel P. Quiring, Ph.D., Beatrice A. Boyle, Erna L. Boroush and Bernardine Lufkin. Paper. Price, \$2.50. Pp. 55, with 106 illustrations. Cleveland, Ohio: Cleveland Clinic Foundation, 1945.

This is a carefully worked out and precisely illustrated textbook which succinctly describes the points of anatomic and surgical interest in the musculature of the extremities. The bulk of the book consists of line drawings illustrating the origin, insertion and motor point and the nervous and arterial supply of each muscle individually. Careful attention is paid to the site of entrance into the muscle of its arterial and nervous supply. The exact relationship of the muscle to the skeleton is well brought out. In the caption for each illustration the aforementioned items are enumerated and reference is made to the main functions of the muscle. The remaining five illustrations point out in a superficial manner the salient points in the skeleton and in the vascular and nervous trees of the extremities.

The excellent line drawings are clear and unembellished by extraneous detail, although a little shading in the correct locations would have made some of the illustrations easier to assimilate rapidly.

A valuable addition to the caption of each drawing is a list of page references for each muscle in Gray's Anatomy and in Cunningham's Anatomy. Page numbers of illustrations, which are particularly clear, are included in these references.

The well catalogued brevity of this book renders it most useful for the student of anatomy, of physical therapy and of extremity surgery.

Psychology in General Practice. Edited by Alan Moncrieff, M.D., F.R.C.P. The Practitioner Handbooks. Published on behalf of The Practitioner. Cloth. Price, 12s. 6d. Pp. 199. London: Eyre and Spottiswoode, Ltd., 1945.

This compact volume, eleventh in the Practitioner Handbook series, performs just what it promises. In seventeen brief chapters contributed by specialists, the mental aspects of disease are presented simply and sympathetically to the general practitioner. He is encouraged by the common sense statements to be alert to, sympathetic with and interested in the psychologic factors which contribute to nearly all symptom pictures and are of prime importance in a large fraction of the cases reaching this office. As Culpin says, an eminent psychiatrist wrote that he saw more psychologic cases in general practice than he did later when specializing in the subject. Further, the practitioner is urged to try his hand at simple psychotherapy and to seek expert help freely and is given the needed criteria on which to make his judgments.

General statements on classification of mental disease, case taking, differential diagnosis and therapy are followed by sections on the depressive, anxiety and compulsive states, hysteria, visceral neuroses, problems of childhood, mental defect, delinquency and sex problems. The chapters on the practitioner's attitude (Culpin), anxiety states (Ling) and obsessions (Boyle) are especially vivid as presented. It is a healthy sign that a chapter on psychiatric social work is included; one on admission to and discharge from mental hospitals, being directed to the English situation—as is the whole volume—will be of less interest to American physicians.

The influence of the war is shown in the treatment of the subject matter, the illustrative cases and the poor quality of paper in the volume. The approach to the subject avoids esoteric and controversial matters and, while the psychoanalytic point of view is well represented, all views are given attention. Each author has made a visible effort to write for the general practitioner, and most have happily succeeded. It is high time these matters received the earnest attention of the nonspecialist and that Culpin's introductory statement be made obsolete: "After lecturing to medical practitioners, I have often been approached and told 'I never come across the symptoms you have been talking about,' and the statement has often been accompanied by a manner—perhaps tinged with only slightly masked incredulity—that has tempted me to reply 'Quite so; and you never will.'"

Food Regulation and Compliance. Volume I. By Arthur D. Herrick. Cloth. Price, \$10. Pp. 646. New York: Revere Publishing Company, 1944.

This volume is written by an experienced food and drug consultant on problems relating to the laws governing food manufacture and marketing. The laws themselves are not reproduced but their application to all aspects of food labeling is discussed in detail. Following a brief historical sketch on the evolution of food regulation, twenty chapters are devoted to problems of food labeling. Under each subject the regulations are outlined and their meaning is interpreted. Subsequently all possible ways in which intentional or unintentional violation might be made are discussed. The frequent use of sample statements or situations serves to make all points clear and the information practical. The sections dealing with food standards and their violation are particularly informative. The style of presentation is simple, straightforward and nontechnical. Frequent quotations from governmental trade correspondence and court decisions add specificity. This book can be recommended as exceedingly valuable to any one interested in or confronted with problems of food labeling.

Curso de malariología, División de malariología, Ministerio de sanidad y asistencia social, Dirección de salubridad pública, Venezuela. In Two Volumes. Boards. No pagination, with illustrations. Maracay, Atagua, Venezuela, 1944.

This is an outline, in Spanish, of a course in malariology given in Maracay under the direction of Dr. Arnoldo Gabaldon, chief of the Division of Malariology, Venezuela, from Oct. 2 to Dec. 1, 1944 to twenty-six students from Bolivia, Colombia, Ecuador, Peru and Venezuela and one from the United States. The first forty-nine pages consist simply of a schedule by hours of the lectures and class exercises. There follow in the first volume introductory, hematologic and entomologic sections, presented largely in outline, doubtless conforming to lectures attended by the students. The second volume covers in the same way various aspects of epidemiology, treatment and prophylaxis. The two volumes no doubt were useful to the students concerned and would be of interest to any agency planning a similar course. But they do not constitute a textbook, manual or reference book in the usual sense.

Tierexperimentelle Untersuchungen über die Wirkung langdauernder Foellikelhormonapplikation und die hormonale Tumorentstehung. Von Dr. Hubert von Wattenwyl, Oberarzt am Frauenspital Basel. Cloth. Price, 24 Swiss francs. Pp. 235, with illustrations. Basel: Benno Schwabe & Co., 1944.

In this monograph are reported the author's experiments on the effects of long continued administration of natural and synthetic estrogens to guinea pigs and other rodents. His experiences confirm the work of others, particularly that of Lipschutz of Chile, in that he was able to produce extragenital fibromas in the domestic guinea pig by the implantation of pellets of natural estrogens as well as diethylstilbestrol. He observed a transient loss of hair in some of his animals. Others failed to gain weight at the same rate as the controls. Noteworthy local and systemic effects of long continued estrogenic stimulation were not obvious. The experiments were not numerous but they were carefully planned and executed. There is a complete bibliography.

An Introduction to the Medical Sciences for Medical Record Librarians. By J. H. Neese, M.D., and F. H. Swett, Ph.D. Edited by F. H. Swett, Professor of Anatomy, Duke University School of Medicine, Durham, N. C. Cloth. Price, \$2.50. Pp. 223. Durham, N. C.: Duke University Press, 1944.

The major portion of this book is devoted to discussions of anatomy, physiology and some of the pathologic processes of the various systems of the body. The discussion follows the classification of the Standard Nomenclature of Disease. The remainder treats of such subjects as vitamins, anesthesia, medical prefixes and suffixes, drugs and abbreviations. There is a glossary. The volume is designed for the medical record librarian. The teaching schedule as outlined seems to be a worthy introduction to the medical sciences and to hospital orientation. More comprehensive sources of information should be included for such a course, however.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

LATE EFFECTS OF FREEZING

To the Editor:—A patient who froze both feet ten years ago has suffered from severe burning sensations in the feet both day and night for the past five years. It is more severe in hot weather. His feet never perspire. He wears shoes which are freely ventilated. Are there any similar cases on record? Has any remedy for relief been successful?

Alexander Kremers, M.D., Kaukauna, Wis.

ANSWER.—Frost bite, like "trench foot" and "immersion foot," often produces fibrosis of the subcutaneous tissues. When the thermal injury is severe the scarring involves the more superficial muscles, blood vessels and nerves. In these circumstances there are likely to be permanent contractures of the toes, weakness of the supporting structures and atrophy of the skin. Loss of sweating in a patient like this suggests permanent damage to the sympathetic nerves to the sweat glands. The burning pain, which is the chief complaint, is probably caused by incomplete recovery of the cutaneous sensory nerves. Hyper-sensitive skin and burning pain in cases of partial nerve damage are most difficult lesions to treat. No satisfactory form of medication has been found for treating these injuries due to cold in this war. In the occasional case complicated by a poor peripheral circulation, sympathectomy may be of help by increasing the blood flow. In a patient who froze his feet ten years ago and has suffered severely for only the past five years, if he is past middle age the condition may be secondary to superimposed occlusive vascular disease. Diagnostic procaine block of the lumbar sympathetic ganglions should certainly be tried, to be followed by ganglionectomy if there is a favorable response.

AMINOPHYLLINE IN HEART DISEASE

To the Editor:—Please indicate the use of aminophylline by injection for uncomplicated hypertensive cardiovascular disease. Is its use by injection once or twice a week to be recommended in persons over 60 years of age as a routine procedure?

M.D., New York.

ANSWER.—Aminophylline has been used extensively in the treatment of disease of the coronary arteries complicating hypertension, but its value as an agent for dilating the coronary arteries has been questioned. This subject was well reviewed by N. H. Boyer in *THE JOURNAL*, May 29, 1943, page 306. Its routine use for persons over 60 years of age is not recommended.

SACCHARIN IN DIABETES

To the Editor:—Is it permissible for one suffering from diabetes mellitus to use saccharin? Will saccharin raise the blood sugar level or cause sugar to appear in the urine?

D. R. Martin, M.D., Carrollton, Ill.

ANSWER.—It is permissible for a diabetic patient to use saccharin. It will not raise the blood sugar level or cause sugar to appear in the urine. It will not hurt the heart or the eyes of a diabetic patient.

DIMETHYL AND DIBUTYL PHTHALATE AND GLYCEROL TRIACETATE

To the Editor:—Are there any ill effects from inhaling dimethyl phthalate, dibutyl phthalate and glycerol triacetate or getting these on the hands? A patient complains chiefly of dyspnea and a feeling that he is going to faint.

Harry M. Salzer, M.D., Cincinnati.

ANSWER.—Information as to toxic properties of the phthalates is scanty. More is known about di-(2-ethylhexyl) phthalate and dibutyl phthalate than about dimethyl phthalate. $(C_6H_4(COOCH_3)_2)$, which contains methyl alcohol 33 per cent and phthalic anhydride 76.17 per cent. The dibutyl form is believed to be much more toxic than the diethyl, and the dimethyl is probably not less toxic than the diethyl. Shaffer, Carpenter and Smyth (*J. Indust. Hyg. & Toxicol.* 27:130 [May] 1945) discuss the toxicity of diethylhexyl phthalate, chiefly with reference to animals and limited to acute and subacute poisoning. Two adult human subjects swallowed single

doses of 10 Gm. and 5 Gm. respectively. In the first instance this ingestion was accompanied by mild gastric disturbances and moderate catharsis. Some of the phthalate was recovered in the urine within twenty-four hours. This substance, while not acting as a skin irritant, apparently is freely absorbed through the skin, which thus may be a prime port of entry, since the high boiling point (295 C.) of this substance is not conducive to free evaporation and inhalation. The lethal dose by skin absorption in rabbits after skin application and ingestion appears to be near 25 cc. per kilogram of body weight. All rats inhaling a mist of dibutyl phthalate died after fifteen minutes' exposure; all rats inhaling a mist of diethyl (diethylhexyl) phthalate died after four hours. Diethyl phthalate applied directly to the eyes did not produce ill effects. These authors conclude that diethyl phthalate is a chemical of low toxicity and that such damage as arises is probably attributable to the alkyl rather than to the phthalate portion.

Glycerol triacetate is believed to constitute a severe skin irritant, since it contains approximately 83 per cent of acetic acid.

UTERINE BLEEDING FOLLOWING MENOPAUSE

To the Editor:—A woman aged 57 passed the menopause at 49; she had no particular difficulty at that time. In May of 1941 a thorough checkup at a clinic indicated she had a chronic cholecystitis with stones, angina pectoris, toxic labyrinthitis, obesity and chronic nervous exhaustion. The electrocardiogram showed some evidence of cardiac damage, apparently on a sclerotic basis. The nervous exhaustion could be explained by the fact that she holds a demanding job and has an invalid husband who is dependent on her, not only for support, but for much of his physical care. By the summer of 1944 her heart condition appeared to have improved a good deal, and, because she was beginning to have more and more digestive trouble which was apparently due to the gallstones, cholecystectomy was performed. A short time following the removal of the gallbladder and while she was still in bed, she had a small amount of vaginal bleeding. In a few days she began to spot again, and this continued until March, with only brief periods of one to three days without any discharge. In March a diagnostic curettage revealed a menopausal type of endometrium with hemorrhage. Pelvic findings are within normal limits on bimanual examination. Repeated examinations during the time of flow have always shown that the flow is from the cervix and that the vaginal mucosa is of normal appearance. Six weeks after the curettage she spotted lightly for two or three days, and six weeks later this was repeated. She has no discomfort at this time, with the exception of a mild bearing down sensation in the pelvis. Most of the time she feels quite well, although she has a mild arthritis which involves particularly the hands and the knees. What are the chances of a cancer developing in the uterus at this time or later?

M.D., Nebraska.

ANSWER.—The diagnosis of uterine bleeding in a woman of 57 who had her menopause eight years previously is cancer until this condition is ruled out. True, in this case cancer has not been found on bimanual examination, on inspection of the cervix or on endometrial curettage. Occasionally a thorough curettage of the endometrium may be performed and a carcinoma overlooked. Such a cancer, a small one, may exist in the cervical canal and not be detected unless the curet is used carefully and systematically on the endocervix as well as on the endometrium. A small carcinoma in the corpus may also be missed on curettage. Furthermore, the patient may have a cancer in the oviducts or in one or both ovaries. In such instances the endometrium would be normal. In the presence of a granulosa cell tumor of the ovary the endometrium is usually hyperplastic.

The occurrence of the bleeding following shortly after the cholecystectomy is almost certainly accidental. This woman should have further surgery. If the operator is experienced in vaginal work he may do a vaginal hysterectomy with removal of both tubes and ovaries. If vaginal surgery cannot be done for one reason or another, a laparotomy should be performed and the uterus and adnexa removed. Even though the ovaries may not be felt on bimanual examination, one or both may contain a neoplastic growth.

SIGNIFICANCE OF LOW BASAL METABOLIC RATE

To the Editor:—With reference to the answer to Dr. Bakke's question in the Aug. 18, 1945 issue of *The Journal*, page 1194, I think the following additional comments might be in order. In so-called pituitary deficiency, in which the basal metabolic rate is depressed, it is frequently found that the administration of thyroid extract is dangerous, since severe and at times critical attacks of hypoglycemia may be produced. Such cases respond well to testosterone or adrenal cortex extract. It is likely that in such cases the low basal metabolic rate is due not to hypothyroidism but such cases the low basal metabolic rate is due not to hypothyroidism but rather to a low fundamental metabolism of the tissues themselves. It is for that reason, and also because the glycogen storage in the liver is low, that thyroid extract must be given with extreme caution. A determination of the blood cholesterol and of the sugar tolerance curve is helpful in deciding whether it is safe and desirable to administer thyroid extract. William Wolf, M.D., New York.

